

**MASSACHUSETTS INSTITUTE OF TECHNOLOGY
FACULTY PERSONNEL RECORD**

Date: December 16, 2021

Full Name: Franz-Josef Ulm

Department: Department of Civil and
Environmental Engineering

1. Date of Birth: March 1964

2. Citizenship: Germany

3. Education:

School	Degree	Date
TU Munich/ENPC	Diplom Ingenieur (eq. M.Sc.)	June 1990
ENPC, Paris	Docteur-Ingenieur (eq. Ph.D.)	June 1994
ENS de Cachan	Habilitation (D.Sc)	January 1998

4. Title of Thesis for Most Advanced Degree: Thermochemomechanical couplings in concrete: a first review of evidence.

5. Principal Fields of Interest:

Mechanics of materials, Micro-poro-mechanics, Durability mechanics, Chemomechanics, Contact mechanics, Fracture mechanics, Urban Physics

6. Name and Rank of Other Department Faculty in the Same Field:

Eduardo A Kausel, Professor Emeritus

Andrew Whittle, Edmund K Turner Professor

7. Name and Rank of Faculty in Other Departments in the Same Field:

Lallit Anand, Professor, Department of Mechanical Engineering

Lorna J. Gibson, Professor, Department of Materials Science and Engineering

David Moore Parks, Professor, Department of Mechanical Engineering

8. Non-MIT Experience (including military service):

Employer	Position	Beginning	Ending
Military/Civil Service	Health Care Ass.	December 1983	March 1985
Ulm Cons. Engng.	Intern	April 1985	October 1996
Technical Univ. Munich	Tutor	November 1986	April 1990
Kupfer Cons. Engng.	Intern	May 1989	June 1989
Technical Univ. Munich	Res. Stud.	November 1989	April 1990
LCPC, Paris	Res. Trainee	May 1990	November 1990
LCPC, Paris	Ph.D.-Res. Ass.	November 1990	December 1993
INSTN, Paris	TA	March 1992	March 1994
ENS de Cachan	TA	November 1993	March 1996

Employer	Position	Beginning	Ending
LCPC, Paris	Res. Eng.	January 1994	December 1998
URFJ, Brazil	Visiting Prof.	March 1996	March 1996
Northwestern Univ.	Visiting Scholar	April 1996	June 1996
Ecole Central, Paris	Adjunct Lecturer	October 1996	December 1998
ENS de Cachan	Adjunct Lecturer	November 1996	December 1998
LCPC, Paris	Head of Section	November 1997	December 1998

9. History of MIT Appointments:

Title	Department	Beginning	Ending
Associate Professor without tenure	Civil and Environmental Engineering	January 1999	June 2003
Associate Professor with tenure	Department of Civil and Environmental Engineering	July 2003	June 2006
Professor	Department of Civil and Environmental Engineering	July 2006	-

10. Consulting Record:

Firm Name / Activity Description	Beginning	Ending
French Ministry of Public Works	February 1994	January 1998
Electricite de France (E.D.F)	September 1997	September 1997
Malcom Pirnie, Inc.	April 2000	May 2000
ETEX Corporation, Cambridge, MA	April 2002	December 2002
Chevron-Texaco, San Ramon, Ca.	January 2003	January 2004
OXAND, France (Scientific Committee)	January 2003	December 2005
Schlumberger, Cambridge, MA	August 2004	August 2004
Lafarge, Paris-Lyon, France	December 2004	December 2004
Seyfarth & Shaw LLP, Expert Witness	January 2005	May 2008
Entergy, Plymouth Nuclear Power Plant	October 2006	January 2007
Lafarge Scientific Panel	June 2011	June 2011
Conseil regional d'Ile de France, Gas Shale Exploitation in France	February 2012	March 2012
Schlumberger, Houston TX, CemStress Software R&D	January 2013	December 2013
Stevenson & Associates, Woburn, MA, Chinshan Nuclear Power Station, Taiwan	October 2014	October 2014

11. Department and Institute Committees, Other Assigned Duties:

Organization / Activity Description	Beginning	Ending
Member of Graduate Education and Admission Committee	September 1999	August 2001

Organization / Activity Description	Beginning	Ending
Faculty Advisor of ASCE Student Chapter	September 2000	August 2003
Editorial Board of MIT-Prentice Hall Civil & Environmental Textbook Series	March 2001	March 2004
Member of Search Committee Department HEAd	April 2001	January 2002
Foreign Scholarship Committee	January 2002	January 2007
Head of Search Committee	September 2002	June 2004
Presidential Committee on Distinguished Fellowships (Regular)	July 2003	June 2006
Dpt. Council	September 2003	January 2012
Undergraduate Curriculum Committee	September 2003	May 2009
U-Grad Task Force "Eng. Mechanics" (Chair)	January 2004	May 2006
CEE representative in U-grad Core Coordination Forum	January 2005	January 2007
Editorial Board "OnBalance"	September 2006	-
Mentoring Committee of several Junior Faculty in CEE and MechE: 3 completed, 1 ongoing	January 2007	-
MISTI: Faculty Director MIT-Germany Program	January 2007	January 2010
SoE Strategic Planning faculty committee	January 2008	January 2008
Member of MechE faculty search committee	January 2009	January 2010
Converge Dinner Presentation (Office of the Dean for Graduate Education)	January 2009	January 2009
Concrete Sustainability Hub @MIT, Director	October 2009	-
Head of Search Committee	September 2010	May 2011
Co-organizer of MIT-France Energy Forum	January 2011	January 2011
MISTI: MIT-France Program Board member	January 2011	-

Organization / Activity Description	Beginning	Ending
Initiator of UMI (joint unit CNRS-MIT)	January 2011	January 2011
Founding director of X-Shale Hub, the science and engineering of gas shale, sponsored by Shell and Schlumberger M\$5/5yrs	September 2011	August 2016
CEE Faculty Search Committee (Regular Member)	January 2012	January 2014
UMI (joint research unit CNRS-MIT), Co-director Since 2012, reporting to MITEI	June 2012	June 2020
CEE Graduate Admissions Committee (Co-Chair)	December 2017	December 2020
Rising Stars Program Committee (Regular Member)	January 2018	January 2020

12. Professional Service:

Organization / Activity Description	Beginning	Ending
Research Project Evaluation and member of visiting committees of Canadian Research Centers, National Science Foundation, United States-Israel Binational Science Foundation, and Austrian Science Foundation.	1995	-
Workshop(W)/Symposia Chair (S): ACI/RILEM: French National Workshop, Paris	1997	January 1997
Workshop(W)/Symposia Chair (S): ACI/RILEM: International Workshop, Paris	1998	January 1998
Workshop(W)/Symposia Chair (S): 12th ASCE/EMD Conf. (S) , La Jolla, Ca.	1998	January 1998
Workshop(W)/Symposia Chair (S): ASCE Structures Congress (S), New Orleans	1999	January 1999
Editorial Board (EB): Cement and Concrete Research	1999	2015
Editor/Co-Editor: Workshop Proceedings "Creep and Shrinkage of Concrete Structures", Hermes Science Publication, Paris, France	1999	January 1999
Workshop(W)/Symposia Chair (S): 5th US Nat. Congress on Computational Mechanics (S), Boulder, Co.	1999	January 1999
Workshop(W)/Symposia Chair (S): 13th ASCE/EMD Conf. (S), Baltimore	1999	January 1999
Workshop(W)/Symposia Chair (S): 14th ASCE/EMD Conf. (S), Austin, TX	2000	January 2000
Editor/Co-Editor: Topical Issue "Durability Mechanics", J. Engng. Mech., ASCE	2000	January 2000
Workshop(W)/Symposia Chair (S): IUTAM/ICTAM 2000 (S), Chicago, IL.	2000	January 2000
Workshop(W)/Symposia Chair (S): 1st MIT Conference on Computational Mechanics (S), MIT	2001	January 2001

Organization / Activity Description	Beginning	Ending
Associate Editor (AE): J. Engineering Mechanics, ASCE	2001	January 2003
Associate Editor (AE): Concrete Science and Engineering, RILEM	2001	January 2003
Editorial Board (EB): Computers & Structures	2001	-
Editor/Co-Editor: Conference Proceedings CONCREEP-6@MIT, Elsevier, UK	2001	January 2001
Workshop(W)/Symposia Chair (S): Joint ASCE/ASME/SES Conference (S), San Diego	2001	January 2001
Member of Scientific Advisory Board: FramCoS-4, 4th International Conference on Fracture Mechanics of Concrete and Concrete Structures, Cachan, France.	June 2001	June 2001
Member of Scientific Advisory Board: 1st MIT Conference on Computational Mechanics, Cambridge, MA.	June 2001	June 2001
Conference Chair / Co-Chair: CONCREEP-6@MIT; 6th International Conference on Creep, Shrinkage and Durability Mechanics, MIT	August 2001	August 2001
Workshop(W)/Symposia Chair (S): 15th ASCE/EMD Conf. (S), New York, NY.	2002	January 2002
Editorial Board (EB): Int J. Numer. Anal. Meth. Geomech.	2002	-
Editor/Co-Editor: Topical Issue "Micromechanics of porous media", J. Engng. Mech., ASCE	2002	January 2002
Editor/Co-Editor: Topical Issue "Durability Mechanics of ASR-expansion", Concrete Science and Engineering, RILEM	2002	January 2002
Workshop(W)/Symposia Chair (S): 5th World Congress on Computational Mechanics (S), Vienna	2002	January 2002
Member of Scientific Advisory Board: EM 2002: 15th Conf. of the Engineering Mechanics Division of ASCE, New York.	June 2002	June 2002
Workshop(W)/Symposia Chair (S): 2nd MIT Conference on Computational Mechanics (S), MIT	2003	January 2003
Workshop(W)/Symposia Chair (S): GAMM –Annual Meeting of the Society for Applied Mathematics and Mechanics Padua, Italy	2003	January 2003
Member of Scientific Advisory Board: Euro-C 2003, Computational Modeling of Concrete Structures, Austria.	March 2003	March 2003
Member of Scientific Advisory Board: 2nd MIT Conference on Computational Mechanics, Cambridge, MA.	June 2003	June 2003
Member of Scientific Advisory Board: 3rd MIT Conference on Computational Mechanics, Cambridge, MA.	June 2003	June 2003
Member of Scientific Advisory Board: EM 2003: 16th Conf. of the Engineering Mechanics Division of ASCE, Seattle, Washington.	June 2003	June 2003

Organization / Activity Description	Beginning	Ending
Workshop(W)/Symposia Chair (S): 6th World Congress Computational Mechanics, Beijing, China	2004	January 2004
Workshop(W)/Symposia Chair (S): Materials Research Society (MRS) Meeting, Boston, MA	2004	January 2004
Member of Scientific Advisory Board: FramCoS-5, 5th International Conference on Fracture Mechanics of Concrete and Concrete Structures, Colorado.	April 2004	April 2004
Workshop(W)/Symposia Chair (S): 3rd MIT Conference on Computational Mechanics (S), MIT	2005	January 2005
Conference Chair / Co-Chair: 3rd Biot Conference on Poromechanics, Biot Centennial (1905–2005), University of Oklahoma, Norman, Oklahoma	May 2005	May 2005
Member of Scientific Advisory Board: Concreep 7, Creep, Shrinkage and Durability Mechanics of concrete and other quasi-brittle materials, Nantes, France.	September 2005	September 2005
Member of Scientific Advisory Board: Euro-C-2006, Computational Modeling of Concrete Structures, Austria.	March 2006	March 2006
MIT-France , MIT-France workshop on Cement Science, January 10-12, 2007 (40 participants from France and US)., Organizer	January 2007	January 2007
Editorial Board (EB): Acta Geotechnica	2008	-
Engineering Mechanics Institute / ASCE, Award Committee, Created new award (incl. fund raising): Leonardo da Vinci Award	2009	2009
Member of Scientific Advisory Board: 3rd International Symposium on Nanotechnology in Construction, Prague, CZECH REPUBLIC	May 2009	June 2009
Founding director of Concrete Sustainability Hub (CSHub@MIT), sponsored by Portland Cement Association and National Ready Mix Concrete Association M\$10/5yrs	September 2009	-
Editorial Board (EB): J. of Nanomechanics & Micromechanics, ASCE	2010	2017
Member of Scientific Advisory Board: Euro-C-2010, Computational Modeling of Concrete Structures, Austria.	March 2010	March 2010
Member of Scientific Advisory Board: 4th Biot Conference on Poromechanics, Columbia Univ, New York, NY	June 2010	June 2010
Conference Chair / Co-Chair: CSHub@MIT Industry Day	August 2010	August 2010
Workshop(W)/Symposia Chair (S): MIT-NANOCEM Workshop, MIT (W)	2011	January 2011
Workshop(W)/Symposia Chair (S): Multi-scale Materials under the Nanoscope (M2UN), GdRI, MIT (W)	2011	January 2011
Conference Chair / Co-Chair: CSHub@MIT Industry Day	August 2011	August 2011
Engineering Mechanics Institute / ASCE, Award Committee, Created new award (incl. fund raising): Zdenek P. Bazant Medal	2012	-

Organization / Activity Description	Beginning	Ending
Concreep-9, International Conference of Creep, Shrinkage and Durability Mechanics of Concrete, President IA-Concreep / Conference Chair	2013	2013
Engineering Mechanics Institute / American Society of Civil Engineers, Award Committee, Chair of Award Committee	2014	2017
American University of Beirut, External Committee for Promotion & Tenure , Committee member	October 2017	May 2019
Engineering Mechanics Institute/American Soc. of Civil Engineers, Conference Chair of Annual Meeting of EMI, Co-chair	May 2018	June 2018
American University of Beirut (AUB), Member of the Board of Trustee, Trustee	June 2021	-
American Society of Civil Engineers, Journal of Engineering Mechanics, Chief Editor	August 2021	-
Reviewer of International Journals: Bone	-	-
Reviewer: Cement and Concrete Research	-	-
Reviewer: Cement and Concrete Composites	-	-
Reviewer: Computers & Structures	-	-
Reviewer: Concrete Science & Engineering (RILEM)	-	-
Reviewer: European J. of Mechanics	-	-
Reviewer: Int. J. of Solid and Structures	-	-
Reviewer: Int. J. of Fracture	-	-
Reviewer: Int. J. Numerical Methods in Engineering	-	-
Reviewer: Int. J. Num. And Anal. Methods in Geomechanics	-	-
Reviewer: J. of Engineering Fracture Mechanics	-	-
Reviewer: J. of Engineering Mechanics (ASCE)	-	-
Reviewer: J. of Geotechnical & Geoenvironmental Engineering (ASCE)	-	-
Reviewer: J. of Materials in Civil Engineering (ASCE)	-	-
Reviewer: J. of Materials Science (Kluwer).	-	-
Reviewer: Materials and Structures (RILEM)	-	-
Reviewer: Nature Materials	-	-
Reviewer: Proceedings of the National Academy of Sciences (PNAS)	-	-
Reviewer: Transport in porous media.	-	-

13. Awards Received:

Award	Date
Rene Houpert Award 'Young Researcher' (Ph.D.) 5/1993	May 1993
NERI Award, Department of Energy 5/1999	May 1999

Award	Date
Gilbert W. Winslow Career Development Chair (MIT/CEE) 6/1999	June 1999
Esther and Harold E. Edgerton Chair at MIT 6/2001	June 2001
Robert L'Hermite Medaille, RILEM 9/2002	September 2002
Walter L. Huber Civil Engineering Research Prize	December 2005
Visiting Professor at Birzeit University, Birzeit, Palestine 2008	January 2008
George Macomber Chair at MIT since 2009	January 2009
Maseeh Teaching Award (for 1.050), Department of Civil & Environmental Engineering, MIT, May 2009. 5/2009	May 2009
Honorary Fellow of Italian Fracture Society 6/2009	June 2009
Michelin Visiting Professor Chair, ESPCI France 2010	January 2010
Maurice A. Biot lecture at Columbia University, October 2010	October 2010
Stephen Brunauer Award, American Ceramic Society July 2011	July 2011
Theodore von Karman Medal, American Society of Civil Engineers	June 2012
Best paper award 2012: Acta Geotechnica	January 2013
Engineering Mechanics Institute Fellow	2013
ENR/Award of Excellence	April 2013
European Academy of Sciences and Arts - Elected Member	March 2014
Honorary Doctorate Technische Universitaet Wien (Austria)	November 2021

14. Current Organization Memberships:

Organization / Activity Description	Offices Held (if any)	Beginning	Ending
ASCE (American Society of Civil Eng.), Member of Property of Materials Committee of EMD	Member of Property of Materials Committee of EMD	January 1997	-
IA-FraMCoS (Int. Assoc. of Fract. Mech. for Concrete and Concrete Structures), Member of Advisory Board	Member of Advisory Board	January 2001	-
ASCE (American Society of Civil Eng.), Member of Poromechanics Committee	Member of Poromechanics Committee	January 2002	-

15. Patents and Patent Applications Pending:

#	Patent Description	File Date	Issue Date
----------	---------------------------	------------------	-------------------

#	Patent Description	File Date	Issue Date
1	Abousleiman, Y., Tran, M., Hoang, S., Ortega, A., Ulm, F. and Bobko, C., "Method of Predicting Mechanical Properties of Rocks Using Mineral Compositions" Provided by In-Situ Logging Tools, US Patent Number 8,380,437: Method of predicting mechanical properties of rocks using mineral compositions provided by in-situ logging tools. By: Younane Abousleiman, Franz-Josef Ulm, Minh H. Tran, Jose Alberto Ortega, Christopher Philip Bobko, Son K. Hoang: A method for predicting mechanical properties of a transverse isotropic region of a rock formation traversed by a well bore including running a logging tool in the well bore; the mass percentages of minerals present in the rock formation surrounding the well bore are measured with the logging tool. The density of the minerals present in the rock formation surrounding the well bore is determined. The porosity of the rock formation surrounding the well bore is measured. From the porosity and the measured mass percentages and density of the minerals, all the transverse isotropic elastic coefficients of the rock formation are determined in real time.	April 2008	February 2013
2	Renal Vasco Backov, Nicolas Chanut, Thibaut Louis Alexandre Divoux, Aikaterini Ioannidou, Roland Pellenq, Franz-Josef Ulm, "ELECTRON CONDUCTING CARBON-BASED CEMENT", US Patent No. 10875809	January 2019	December 2020
3	A method of monitoring quality of a road segment from driver data is provided. The method includes receiving, by a server over a network, the driver data for a road segment from one or more sensing units in one or more vehicles. The method also includes calculating, in one or more computing devices, one or more quantitative pavement surface characteristics of the road segment from the driver data using a probabilistic inverse analysis framework. The method also includes identifying, in the one or more computing devices, one or more quantitative vehicle properties of the one or more vehicles from the driver data using the probabilistic inverse analysis framework.	-	July 2021
4	Renal Vasco Backov, Nicolas Chanut, Thibaut Louis Alexandre Divoux, Aikaterini Ioannidou, Roland Pellenq, Franz-Josef Ulm, "ELECTRON CONDUCTING CARBON-BASED CEMENT", US Patent No.	December 2020	-
5	Shahsavari, R., Ulm, F.J.; Pellenq RMJ, Van Vliet KJ, Yip S., "Cement hydrate compositions and methods of synthesis", U.S. Provisional Patent Application No.: 61/573,551	-	-

16. Professional Registration:

Organization / Activity	Beginning	Ending
Registered professional Engineer of the Bavarian Chamber of Engineers, Germany, No. 36149.	-	-

17. Major New Products, Processes, Designs or Systems:

- Carbin** is a real-time sensing-monitoring system that uses high-frequency acceleration measurements of smartphones or tablets to monitor and map the response of vehicles to road conditions and driver behavior. At the core of Carbin's technology is random vibration theory combined with deep learning algorithms to separate spatially and temporally varying road roughness conditions from vehicle properties and driver behavior. Originally developed as a stand-alone "carbin App" for smartphones and tablets (available for free for Android and iOS systems), carbin's kernel is an SDK (software development kit) of various software tools which can be installed as one package into any other App permitting location measurements. These tools include 100 Hz measurements from in-built accelerometers and gyroscope, GPS position, transfer of the data to an AWS server, and real-time analysis of the results.

Educational Contributions Other Than Classroom Teaching of Franz-Josef Ulm

1. Teaching materials developed that illustrate teaching effectiveness or innovativeness (e.g., course syllabi, lecture or recitation content, course handouts, student assignments, educational technology modules):

- i. i. WEB-BASED SUBJECT DEVELOPMENT 1.033 / 1.57: Lecture Notes, Lecture Slides, Recitations, Assignments, Readings and e-mechanics utilities in which some mechanical principles are realized as Java applications in cross-projects with IT-subject at MIT (Mohr-Circle simulator, 1D-multi-surface plasticity simulator, HP2C-simulator).
- ii. WEB-BASED SUBJECT DEVELOPMENT 1.570: Lecture Notes, Assignments and Term Projects. This subject support through the web which is made possible through MIT's command system (<http://command.mit.edu>) was and is very positively received by all students.
- ii. iii. NEW SUBJECT DEVELOPMENT WITH LECTURE NOTES/RECITATION NOTES etc. 1.050 Engineering Mechanics I ("Why are there no Monsters on Earth) - Sophomore level introduction to Engineering Mechanics as "lingua franca" of Engineering.

2. Education contributions, apart from classroom performance and supervision, such as new educational programs and curricula developed by the candidate (reference pertinent education publications or presentations in other sections of the FPR):

- i. i. A NEW TEXTBOOK SERIES FOR CIVIL, ENVIRONMENTAL AND SYSTEMS ENGINEERING: Since my arrival at MIT, I actively participated in developing a new textbook series, the MIT-Prentice Hall Series of for Civil & Environmental and Systems Engineering. As member of the Editorial Board of this textbook series, I am in charge of "materials and structures".
- ii. TEXTBOOK WRITING: The lecture notes I developed for my two subjects, 1.033/1.57 (Mechanics of Material Systems), and 1.570 (Durability Mechanics) are published as textbooks in this MIT-Prentice Hall Series of for Civil & Environmental and Systems Engineering.
- iii. SHORT-COURSE DEVELOPMENT: Coussy, O., Ulm, F.-J., Mainguy, M., "A short-course on environmental mechanics of concrete – Lecture Notes", Summer School Udine, Italy (89 pages), 1999.
- iv. SUMMER-SCHOOL DEVELOPMENT: Together with Prof. Luc Dormieux (ENPC, France), we developed an international graduate summer school on "Applied Micromechanics of porous materials", which was held in July 2004 at the CISM center in Udine. The lecture notes are published by Springer.
- v. RESEARCH EDUCATIONAL DISSEMINATION: As part of my editorial activities, I have developed and contributed to several Special Issues of International Journals on "Hot Topics" in Engineering Mechanics, that aim at state-of-the-art reviews and perspectives.
- vi. CONCREEP-6@MIT INDUSTRY STIPEND OF EXCELLENCE FOR GRADUATE STUDENTS: For the major international conference "CONCREEP-6@MIT: Creep, Shrinkage and Durability Mechanics" I organized in 2001 at MIT, I developed together with Industrial Sponsors a competitive "industry stipend program of excellence for graduate students". Funded by Lafarge (Cement Industry), and Electricite de France, a number of eight graduate students from all over the world were selected by an award committee to receive this industry stipend of excellence covering registration fees and travel allowance.
- ii. NEET THREAD DEVELOPMENT: "The Startup Thread: Sustainable Materials for Energy & Environment", M.I.T.
- iii. vii. Development of the Marseille Winterschool on "Multiscale Porous Materials" as IAP-offering sponsored by MITEI and MIT-France program. Specifically, in 2015, development of a competitive fellowship program for MIT graduate students to attend the Winterschool.
- iv. viii. Re-DEVELOPMENT of 1.035 Mechanics of Materials as a lecture-lab class including exposure to nanomechanical testing methods, material characterization and material choice for Civil Engineering applications.

3. Contributions to the Educational Commons:

None

Publications of Franz-Josef Ulm

1. Books

	Publication Name	Publication Date
1.1	Ulm, F.-J and Coussy, O., <i>Mechanics and Durability of Solids – Vol. I: Solid Mechanics</i> , 389 pages, Prentice Hall, Upper Saddle River, NJ, 2003.	2003
1.2	Acker, P., Torrenti, J.-M., Ulm, F.-J., <i>Comportement du béton au jeune âge, Traité MIM – Mécanique et Ingénierie des Matériaux, série Matériaux de construction</i> , 192 pages, Hermès-Lavoisier Science Publications, Cachan, France, 2004.	2004
1.3	Dormieux, L.; Ulm, F.J. (Eds) <i>Applied Micromechanics of Porous Materials</i> . Springer Verlag Wien, 2005. Print.	2005
1.4	Dormieux, L., Kondo, D. and Ulm, F.-J., <i>Microporomechanics</i> , 328 pages, J. Wiley & Sons, Chichester, 2006.	2006

2. Papers in Refereed Journals

	Publication Name	Publication Date
2.1	Gregeois, B., Ulm, F.-J., “3D linear dynamic analysis of a RC structure: the CASSBA mock-up”, <i>Bull. Labo. P. et Ch.</i> 181, Paris, 53-58, August 1992 [in French].	1992
2.2	Ulm, F.-J., Clement, J.L., Afra, H., Argoul, P., “Loss of frequency and critical damping in the limit state: RC structures subjected to dynamic loadings”, <i>Bauingenieur</i> 68, 183-190, March 1993 [in German].	1993
2.3	Ulm, F.-J., Piau, J.M., “Fall of a Temple: Theory of Contact Applied to Masonry Joints”, <i>Journal of Structural Engineering, ASCE</i> , 119(3), 687-697 (March 1993).	1993
2.4	*Toutlemonde, F., Piermattei, E., Ulm, F.-J., Rossi, P., “Modeling of concrete in high rate dynamics: a first experience with a gradient damage model”, <i>Bull. Labo. P. et Ch.</i> 198, Paris, 39-52, August 1995 [in French].	1995
2.5	Ulm, F.-J., Coussy, O., “Modeling of thermochemomechanical couplings of concrete at early ages”. <i>Journal of Engineering Mechanics, ASCE</i> , 121(7), 785-794, July 1995.	1995
2.6	Coussy, O., Ulm, F.-J., “Creep and plasticity due to chemo-mechanical couplings”, <i>Archive of Applied Mechanics</i> , 66, 523-535, September 1996.	1996
2.7	Ulm, F.-J., Coussy, O., “Strength growth as chemo-plastic hardening in early age concrete”, <i>Journal of Engineering Mechanics, ASCE</i> , 122(12), 1123—1132, December 1996.	1996
2.8	Rossi, P., Ulm, F.-J., Hachi, F., “Compressive behavior of concrete: physical mechanisms and modeling”, <i>Journal of Engineering Mechanics, ASCE</i> , 122(11), 1038—1043, November 1997.	1997
2.9	Bažant, Z.P., Hauggaard, A.B, Baweja, S., Ulm, F.-J., “Microprestress-solidification theory for concrete creep. I: Aging and drying effects”, <i>Journal of Engineering Mechanics, ASCE</i> , 123(11), 1188-1194, November 1997.	1997
2.10	Rossi, P., Ulm, F.-J., “Size effects in the biaxial behaviour of concrete: physical mechanisms and modelling”, <i>Materials and Structures, RILEM</i> , Vol. 30 (198), 210-216, May 1997.	1997
2.11	Ulm, F.-J., Acker, P., “Creep and creep recovery of concrete – Review of Evidence”. <i>Bull. Labo P. et Ch., Spécial XX</i> , 73-82, February 1998 [in French].	1998

	Publication Name	Publication Date
2.12	*Sercombe, J., Ulm, F.-J., Toutlemonde, F., "Viscous hardening plasticity for concrete under high rate dynamics", <i>Journal of Engineering Mechanics, ASCE</i> , 124(9), 1050—1057, September 1998.	1998
2.13	Ulm, F.-J., Acker, P., Lévy, M. (1998). "The fire in the Trans-channel tunnel. Mechanical analysis of the concrete spalling", <i>Revue française de génie civil</i> , 2(3), Ed. Hermès, 315-339, July, 1998 [in French].	1998
2.14	Ulm, F.-J., Coussy, O., "Couplings in early-age concrete: from material modeling to structural design", <i>Int. Journal of Solids and Structures</i> , 35 (31-32), 4295-4311, July 1998.	1998
2.15	Fairbairn, E.M.R., Guedes, Q.M., Ulm, F.-J., "An inverse problem for the determination of probabilistic parameters of concrete behavior modeled by a statistical approach", <i>Materials and Structures, RILEM</i> , Vol. 32, 9—13, January-February 1999.	1999
2.16	*Ben Romdhane, M.R., Rossi, P., Ulm, F.-J., "The steel-concrete interface revisited: Micromechanical analysis", <i>Concrete Science and Engineering, RILEM</i> , 1, 215—221, December 1999.	1999
2.17	*Aouameur, A., Ulm, F.-J., Humbert, P., Semblat, J.-F., "Nonlinear analysis of structures using multilayer shell elements", <i>Revue française de génie civil</i> , Vol. 3(5), Ed. Hermès, 219—238, December 1999 [in French].	1999
2.18	*Hellmich, C., Ulm, F.-J., Mang, H.A., "Consistent linearization in finite element analysis of coupled chemo-thermal problems with exo- or endothermal reactions", <i>Computational Mechanics</i> , 24(4), 238—244, December 1999.	1999
2.19	*Semblat, J.F., Aouameur, A., Ulm, F.-J., Mitani, H., "Seismic behavior of a building (the CAMUS project. I: Numerical simulation of the linear response)", <i>Bull. Labo. P. et Ch.</i> , 219, Paris, 53—67, November 1999 [in French].	1999
2.20	Ulm, F.-J., Torrenti, J.M., Adenot, F., "Chemoporoplasticity of calcium leaching in concrete", <i>Journal of Engineering Mechanics, ASCE</i> , 125(10), 1200—1211 October 1999.	1999
2.21	Ulm, F.-J., Le Maou, F., Boulay, C., "Creep and shrinkage couplings: new review of some evidence", <i>Revue française de génie civil</i> , Vol. 3(3-4), Ed. Hermès, 21—37, August 1999.	1999
2.22	Fairbairn, E.M.R., Paz, C.N.M., Ebecken, N.F.F, Ulm, F.-J., "Use of neural networks for fitting of FE probabilistic scaling model parameters", <i>International Journal of Fracture</i> , Vol. 95, 315—324, July 1999	1999
2.23	*Hellmich, C., Ulm, F.-J., Mang, H.A., "Multisurface chemoplasticity. II: Numerical studies on NATM tunneling", <i>Journal of Engineering Mechanics, ASCE</i> , 125(6), 702—713, June 1999.	1999
2.24	*Hellmich, C., Ulm, F.-J., Mang, H.A., "Multisurface chemoplasticity. I: Material Model for shotcrete", <i>Journal of Engineering Mechanics, ASCE</i> , 125(6), 692—701, June 1999.	1999
2.25	Ulm, F.-J., Rossi, P., Schaller, I., Chauvel, D., "Durability scaling of cracking in HPC-structures subject to hygromechanical gradients", <i>Journal of Structural Engineering, ASCE</i> , Vol. 125(6), 693—702, June 1999.	1999
2.26	*Désir, J.M., Ben Romdhane, M.R., Ulm, F.-J., Fairbairn, E.M.R., "Steel-concrete interface: revisiting constitutive and numerical modeling", <i>Computers & Structures</i> , Vol. 71(5), 489—503, May 1999.	1999
2.27	Ulm, F.-J., Acker, P., Lévy, M., "The 'Chunnel' fire. II. Analysis of concrete damage", <i>Journal of Engineering Mechanics, ASCE</i> , 125(3), 283—289, March 1999.	1999
2.28	Ulm, F.-J., Coussy, O., Bazant, Z.P., "The 'Chunnel' fire. I. Chemoplastic softening in rapidly heated concrete", <i>Journal of Engineering Mechanics, ASCE</i> , 125(3), 272—282, March 1999.	1999

	Publication Name	Publication Date
2.29	Sercombe, J., Ulm, F.-J., Mang, H.A., "Consistent return mapping algorithm for chemoplastic constitutive laws with internal couplings", <i>Int. J. Numerical Methods in Engineering</i> , 47, 75—100, January 2000.	2000
2.30	Ulm, F.-J., Le Maou, F., Boulay, C., "Creep and Shrinkage of Concrete -- Kinetics Approach". A. Al-Manaseer (Ed.): <i>The Adam Neville Symposium: Creep and Shrinkage - Structural Design Effects</i> , ACI SP194-4, 135—153, August 2000.	2000
2.31	Ulm, F.-J., Coussy, O., Li, K., Larive, C., "Thermo-Chemo-Mechanics of ASR-expansion in concrete structures", <i>Journal of Engineering Mechanics</i> , ASCE, 126(3), 233—242, March 2000.	2000
2.32	Fairbairn, E.M.R., Ebecken, N.F.F., Paz, C.N.M., Ulm, F.-J., "Determination of probabilistic parameters of concrete: solving the inverse problem by using artificial neural networks", <i>Computers & Structures</i> , Vol. 78(1-3), 497—503, June 2000.	2000
2.33	Hellmich, C., Sercombe, J., Ulm, F.-J., Mang, H.A., "Modeling of early-age creep of shotcrete. II: Application to tunneling", <i>Journal of Engineering Mechanics</i> , ASCE, 126(3), 292—299, March 2000.	2000
2.34	Sercombe, J., Hellmich, C., Ulm, F.-J., Mang, H.A., "Modeling of early-age creep of shotcrete. I: Model and model parameters", <i>Journal of Engineering Mechanics</i> , ASCE, 126(3), 284—291, March 2000	2000
2.35	Acker, P., Ulm, F.-J., "Creep and shrinkage of concrete: physical origins, practical measurements", <i>Nuclear Engineering and Design</i> , Vol. 203(2--3), 143—158, February-March 2001.	2001
2.36	Mainguy, M., Ulm, F.-J., "Coupled diffusion-dissolution around a fracture channel: the solute congestion phenomenon", <i>Transport in porous media</i> , Vol. 45(3) 80, 481—497, December 2001.	2001
2.37	Granger, L., Rieg, C.Y., Touret, J.P., Fleury, F., Nahas, G., Danisch, R., Brusa, L., Millard, A., Laborderie, C., Ulm, F., Contri, P., Schimmelpfennig, K., Barre, F., Firnhaber, M., Gauvain, J., Coulon, N., Dutton, L.M.C., Tuson, A., "Containment Evaluation under Severe Accidents (CESA): synthesis of the predictive calculations and analysis of the first experimental results obtained on the Civaux mockup", <i>Nuclear Engineering and Design</i> , Vol. 209(1-3), 155—163, November 2001.	2001
2.38	Coussy, O., Ulm, F.-J., "Basic concepts of durability mechanics of concrete structures. Deterioration kinetics – Material modeling – Structural applications", <i>Revue française de génie civil</i> , Vol. 5(6), Topical Issue, <i>Environmental Geomechanics</i> , ed. by R. Charlier and A. Gens, Ed. Hermès, 897—919, October 2001.	2001
2.39	Hellmich, C., Mang, H.A., Ulm, F.-J., "Hybrid method for quantification of stress states in shotcrete tunnel shells: combination of 3D in situ displacement measurements and thermochemoplastic material law", <i>Computers & Structures</i> , Vol. 79(22–25), 2103—2115, September 2001.	2001
2.40	Ulm, F.-J., Coussy, O., "Some time and length scales in durability mechanics of concrete structures", <i>Concrete Science and Engineering</i> , RILEM, Vol. 3(11), 121—134, September 2001.	2001
2.41	*Mainguy, M., Ulm, F.-J., Heukamp, F.H., "Similarity properties of demineralization and degradation of cracked porous materials", <i>Int. Journal of Solids and Structures</i> , Vol. 38, 7079—7100, August 2001.	2001
2.42	*Heukamp, F.H., Ulm, F.-J., Germaine, J.T., "Mechanical Properties of calcium leached cement pastes: Triaxial stress states and the influence of the pore pressure", <i>Cement and Concrete Research</i> , Vol. 31(5), 767—774, May 2001.	2001
2.43	Ulm, F.-J., Coussy, O., "What is a 'massive' concrete structure at early ages? -- Some dimensional arguments", <i>Journal of Engineering Mechanics</i> , ASCE, Vol. 127(5), 512—522, May 2001.	2001

	Publication Name	Publication Date
2.44	*Ulm, F.-J., Heukamp, F.H., Germaine, J.T., "Residual design strength of cement-based materials for nuclear waste storage systems", Nuclear Engineering and Design, Vol. 211(1), 51–60, January 2002.	2002
2.45	*Chuang, E., Ulm, F.-J., "A two-phase composite model for high-performance cementitious composites", Journal of Engineering Mechanics, ASCE, Vol. 128(12), 1314–1323, December 2002.	2002
2.46	Hellmich, C., Ulm, F.-J., "Are mineralized tissues open crystal foams reinforced by crosslinked collagen? - Some Energy Arguments", Journal of Biomechanics, Vol. 35(9), 1199–1212, September 2002	2002
2.47	Bazant Z.P., Rajapakse, Y.D.S., Allen, D.H., Ballarini, R., Espinosa, H.D., Gao, H., Gettu, R., Jirasek, M., Pijaudier-Cabot, G. Planas, J., Ulm, F.-J., "Report on ONR Workshop on Fracture Scaling", International Journal of Fracture, Vol. 113, 345–366, August 2002.	2002
2.48	Hellmich, C., Ulm, F.-J., "A micromechanical model for the ultrastructural stiffness of mineralized tissues", Journal of Engineering Mechanics, ASCE, Vol. 128(8), 898–908, August 2002.	2002
2.49	Lemarchand, E., Ulm, F.-J., Dormieux, L., "Effect of inclusions on friction coefficient of highly filled composite materials", Journal of Engineering Mechanics, ASCE, Vol. 128(8), 876–884, August 2002.	2002
2.50	*Chuang, E., Overland, M., Ulm, F.-J., "On Length Scales of Fiber Reinforced Cementitious Composites", Concrete Science and Engineering, RILEM, Vol 4(14), 98–105, June 2002.	2002
2.51	*Ulm, F.-J., Peterson, M., Lemarchand, E., "Is ASR-Expansion caused by chemoporoplastic dilatation?", Concrete Science and Engineering, RILEM, Vol. 4(3), 47–55, March 2002.	2002
2.52	Lemarchand, E., Dormieux, L., Ulm, F.-J., "Elements of micromechanics of ASR expansion", Concrete Science and Engineering, RILEM, Vol. 4(3), 12–22, March 2002.	2002
2.53	*Ben Romdhane, M.R., Ulm, F.-J., "Computational mechanics of the steel concrete interface", Int J. Numer. Anal. Meth. Geomech., 26, 99–120, January 2002.	2002
2.54	*Constantinides, G., Ulm, F.-J., Van Vliet, K. "On the use of nanoindentation for cementitious materials", Concrete Science & Engineering, Materials & Structures, RILEM, Vol. 36, 191–196, April 2003	2003
2.55	Hellmich, C., Ulm, F.-J., Dormieux, L. "Homogenization of bone elasticity based on tissue-independent ('universal') phase properties", PAMM · Proc. Appl. Math. Mech., Vol. 3, 56–59, 2003 / DOI 10.1002/pamm.200310315.	2003
2.56	Bernard, O., Ulm, F.-J., Lemarchand, E., "A multiscale micromechanics–hydration model for the early age elastic properties of cement-based materials", Cement & Concrete Research, Vol. 33 (9), 1293 –1308, September 2003.	2003
2.57	Hellmich, C., Ulm, F.-J., "Average hydroxyapatite concentration is uniform in extracollagenous ultrastructure of mineralized tissue: Evidence at the 1-10 micrometer scale", Biomechanics and Modelling in Mechanobiology, Vol. 2, 21 – 36, September 2003.	2003
2.58	Ulm, F.-J., "Chemomechanics of concrete at finer scales", Materials & Structures, RILEM, Vol. 36, 426–438, August-September 2003.	2003
2.59	*Heukamp, F.H., Ulm, F.-J., Germaine, J.T., "Poroplastic properties of calcium leached cement-based materials", Cement & Concrete Research, Vol. 33(8), 1127–1136, August 2003.	2003
2.60	Bernard, O., Ulm, F.-J., Germaine, J.T., "Volume and Deviator Basic Creep of Calcium Leached Cement-Based Materials", Cement & Concrete Research, Vol. 33(8), 1155–1173, August 2003.	2003

	Publication Name	Publication Date
2.61	*Ulm, F.-J., Lemarchand, E., Heukamp, F.H., "Elements of chemomechanics of Calcium leaching of cement-based materials at different scales", Journal of Engineering Fracture Mechanics, Vol. 70(7-8), 871–889, May 2003.	2003
2.62	*Constantinides, G., Ulm, F.-J., "The effect of two types of C-S-H on the elasticity of cement-based materials: results from nanoindentation and micromechanical modeling", Cement & Concrete Research, Vol. 34 (1), 67-80, January 2004.	2004
2.63	*Delafargue A., Ulm, F.-J. "Explicit approximations of the indentations modulus of elastically orthotropic solids for conical indenters", Int. Journal of Solids and Structures, Vol. 41 (12), 7351 – 7360, December 2004.	2004
2.64	Hellmich, C., Ulm, F.-J., Dormieux, L. "Can the diverse elastic properties of trabecular and cortical bone be attributed to only a few tissue-independent phase properties and their interactions? Arguments from a multiscale approach", Biomechanics and Modelling in Mechanobiology, Vol. 2, 219 – 238, September 2004.	2004
2.65	*Semblat, J.F., Aouameur, A., Ulm, F.-J., 'Non linear seismic response of a low reinforced concrete structure : modeling by multilayered finite shell elements', Structural Engineering and Mechanics, Vol. 18(2), 211–229, February 2004.	2004
2.66	Ulm, F.-J., Constantinides, G. and Heukamp, F. H., 'Is concrete a poromechanics material? – A multiscale investigation of poroelastic properties', Materials & Structures, RILEM, Vol. 37 (265), 43-58, January-February 2004.	2004
2.67	*Heukamp, F.H, Lemarchand, E., Ulm, F.-J., "The effect of interfacial properties on the cohesion of highly filled composites", Int. Journal of Solids and Structures, Vol. 42 (1), 287 – 305, January 2005.	2005
2.68	Ballarini, R., Kayacan, R., Ulm, F.-J., Belytschko, T. , Heuer, A.H., "Biological structures mitigate catastrophic fracture through various strategies, International Journal of Fracture, Vol. 135,187–197, December 2005.	2005
2.69	Lemarchand, E., Dormieux, L., Ulm, F.-J., "Micromechanics investigation of expansive reactions in chemoelastic concrete", Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences 363.1836 (2005): 2581-2602, November 2005.	2005
2.70	Hellmich, C., Ulm, F.-J., "Microporodynamics of bones: Prediction of the Frenkel-Biot' slow compressional wave", Journal of Engineering Mechanics, ASCE, Vol. 131(9), 918 – 927, September 2005.	2005
2.71	*Heukamp, F.H, Ulm, F.-J., Germaine, J.T., "Does calcium leaching increase the ductility of cementitious materials? – Evidence from direct tension tests", Journal of Materials in Civil Engineering, ASCE, Vol. 17(3), 307–312, March 2005.	2005
2.72	Hellmich, C., Ulm, F.-J., "Drained and undrained poroelastic properties of healthy and pathological bone: A poro-micromechanical investigation", Transport in porous media, Vol. 58, 243—268, March 2005	2005
2.73	*Ganneau, F., Constantinides, G., Ulm, F.-J., "Dual-Indentation Technique for the Assessment of Strength Properties of Cohesive-Frictional Materials", Int. J. Solids and Structures, Vol. 43(4), 1727 – 1745, April 2006.	2006
2.74	*Tai K, Ulm FJ, Ortiz C, "Nanogranular origins of the strength of bone", NANO LETTERS 6 (11): 2520-2525 NOV 8 2006.	2006
2.75	Ulm, F.-J., Abousleiman, Y., "The nanogranular nature of shale", Acta Geotechnica, Vol. 1(2), 77–88, September 2006.	2006

	Publication Name	Publication Date
2.76	*Constantinides G., Ravi Chandran K.S., Ulm F.-J. and K.J. Van Vliet (2006). 'Grid indentation analysis of composite microstructure and mechanics: Principles and validation', Mat. Sc. Eng. A 430(1-2), 189-202, August 2006.	2006
2.77	*Vandamme, M., Ulm, F.-J., "Viscoelastic solutions for conical indentation", Int. J. Solids and Structures, Vol. 43(10), 3142 – 3165, May 2006.	2006
2.78	Dormieux, L., Kondo, D., Ulm, F.-J., "A micromechanical analysis of damage propagation in fluidsaturated cracked media", Comptes Rendus Mecanique, 334(7), 440–446, July 2006.	2006
2.79	Jennings, H.M., Thomas, J.J., Gevrenov, J.S., Constantinides G., Ulm, F.-J., "A multi-technique investigation of the nanoporosity of cement paste", Cement & Concrete Research, 37(3), 329-336, March 2007; "Reply" (to discussion), Cement & Concrete Research, 37(9), 1374-1375, September 2007	2007
2.80	Ganguly, P., Ulm, F.-J., "Analysis of deformation coupled surface remodeling in porous biomaterials", Journal of Materials Science, 42(21), 8873–8884, November 2007	2007
2.81	*Ortega, J.A., Ulm, F.-J., Abousleiman, Y., "The effect of the nanogranular nature of shale on their poroelastic behavior", Acta Geotechnica, Vol. 2(3), 155 – 182, October 2007.	2007
2.82	*Ulm, F.-J., Vandamme, M., Bobko, C., Ortega, J.A., Tai, K. Ortiz, C., "Statistical Indentation Techniques for Hydrated Nanocomposites: Concrete, Bone and Shale", J. American Ceramic Society, 90(9), 2677–2692, September 2007.	2007
2.83	*Ganneau, F.P., Ulm, F.-J., Gondzio, J., Garboczi, E.J., "An algorithm for computing the compressive strength of heterogeneous cohesive-frictional materials – Application to cement paste", Computers and Geotechnics, 34, 254–266, September 2007	2007
2.84	*DeJong, M.J., Ulm, F.-J., "The nanogranular behavior of C-S-H at elevated temperatures (up to 700C)", Cement & Concrete Research, 37 (1), 1-12, January 2007.	2007
2.85	*Constantinides, G., Ulm, F.-J., "The nanogranular nature of C-S-H", J. Mech. Physics of Solids, 55 (1), 64-90, January 2007.	2007
2.86	H. M. Jennings, J. J. Thomas, J. S. Gevrenov, G. Constantinides, F. Ulm "Reply to discussion of the paper "A multi-technique investigation of the nanoporosity of cement paste"" Cement and Concrete Research 37.9 (2007): 1374-1375. Print.	September 2007
2.87	*Cariou, S., Ulm, F.-J., Dormieux, L., "Hardness-packing density scaling relations for cohesive-frictional materials", J. Mech. Physics of Solids, Vol 56(3). 924 -952, March 2008.	2008
2.88	Sorelli L., Constantinides G., Ulm F.-J., Toutlemonde, F., "The nano-mechanical signature of Ultra High Performance Concrete by statistical nanoindentation techniques", Cement and Concrete Research, Vol. 38(12), 1447-1456, Dec. 2008.	2008
2.89	Pichler, Ch., Lackner, R., Ulm F.-J., "Scaling Relations for viscoelastic-cohesive conical indentation", International Journal of Materials Research (formerly Zeitschrift fuer Metallkunde), Vol. 99(8), 836 – 846, August 2008	2008
2.90	Ulm, F.-J., Jennings H.M., "Does C–S–H particle shape matter?", Cement and Concrete Research, Vol 38(8-9), 1126-1129, August 2008.	2008
2.91	*Miller M., Bobko C., Vandamme M., Ulm F.-J., "Surface roughness criteria for cement paste nanoindentation", Cement and Concrete Research, Vol 38(4), 467–476, April 2008.	2008

	Publication Name	Publication Date
2.92	*Bobko, C., Ulm, F.-J., "The nano-mechanical morphology of shale", <i>Mechanics of Materials</i> , Vol. 40 (4-5), 318-337, Apr-May 2008.	2008
2.93	*Shahsavari R, Ulm FJ. Indentation analysis of fractional viscoelastic solids. <i>JOURNAL OF MECHANICS OF MATERIALS AND STRUCTURES</i> . 4(3): 523-550, MAR 2009.	2009
2.94	*Bobko CP, Ortega JA, Ulm FJ. Comment on Elastic modulus and hardness of muscovite and rectorite determined by nanoindentation" by G. Zhang, Z. Wei and RE Ferrell [<i>Applied Clay Science</i> 43 (2009) 271-281] <i>APPLIED CLAY SCIENCE</i> , 46(4): 425-428, DEC 2009	2009
2.95	*Shahsavari R, Buehler MJ, Pellenq RJM, Ulm FJ. "First-Principles Study of Elastic Constants and Interlayer Interactions of Complex Hydrated Oxides: Case Study of Tobermorite and Jennite" <i>JOURNAL OF THE AMERICAN CERAMIC SOCIETY</i> . 92(10): 2323-2330, OCT 2009	2009
2.96	Pellenq RJM, Kushima A, Shahsavari R, Buehler MJ, Van Vliet KJ, Yip S, Ulm FJ. A realistic molecular model of cement hydrates. <i>PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA</i> . 106(38): 16102-16107, SEP 22 2009	2009
2.97	*Vandamme M, Ulm FJ. Nanogranular origin of concrete creep. <i>PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA</i> . 106(26): 10552-10557, JUN 30 2009	2009
2.98	*Ortega JA, Ulm FJ, Abousleiman Y. The nanogranular acoustic signature of shale. <i>GEOPHYSICS</i> , 74(3): D65-D84, MAY-JUN 2009	2009
2.99	Hellmich C, Celundova D, Ulm FJ. Multiporoelasticity of Hierarchically Structured Materials: Micromechanical Foundations and Application to Bone. <i>JOURNAL OF ENGINEERING MECHANICS-ASCE</i> , 135(5): 382-394, MAY 2009	2009
2.100	Randall NX, Vandamme M, Ulm FJ. Nanoindentation analysis as a two-dimensional tool for mapping the mechanical properties of complex surfaces. <i>JOURNAL OF MATERIALS RESEARCH</i> , 24(3): 679-690, MAR 2009	2009
2.101	Abousleiman, Younane, Ortega, J., Ulm, Franz. "The nanogranular acoustic signature of shale" <i>The Leading Edge</i> 74.3 (2009): D65. Print.	May 2009
2.102	Ulm FJ, Vandamme M, Jennings HM, Vanzo J, Bentivegna M, Krakowiak KJ, Constantinides G, Bobko CP, Van Vliet KJ. "Does microstructure matter for statistical nanoindentation techniques?". <i>CEMENT & CONCRETE COMPOSITES</i> . 32(1): 92-99, JAN 2010	2010
2.103	*Ortega JA, Ulm FJ, Abousleiman Y, The effect of particle shape and grain-scale properties of shale: A micromechanics approach. <i>INTERNATIONAL JOURNAL FOR NUMERICAL AND ANALYTICAL METHODS IN GEOMECHANICS</i> Volume: 34 Issue: 11 Pages: 1124-1156 Published: AUG 15 2010	2010
2.104	Chen JJ, Sorelli L, Vandamme M, Ulm FJ, A Coupled Nanoindentation/SEM-EDS Study on Low Water/Cement Ratio Portland Cement Paste: Evidence for C-S-H/Ca(OH)(2) Nanocomposites. <i>JOURNAL OF THE AMERICAN CERAMIC SOCIETY</i> Volume: 93 Issue: 5 Pages: 1484-1493 Published: MAY 2010	2010
2.105	*Vandamme M, Ulm FJ, Fonollosa P. "Nanogranular packing of C-S-H at substoichiometric conditions", <i>CEMENT AND CONCRETE RESEARCH</i> . 40(1): 14-26, JAN 2010.	2010
2.106	Ulm, Franz. "Homage to Olivier Coussy" <i>European Journal of Environmental and Civil engineering</i> 14.4 (2010): 389-392. Print.	April 2010

	Publication Name	Publication Date
2.107	Ulm, Franz. "Dr Olivier Coussy, Scientist and Engineer of the Mechanics and Physics of Porous Materials (1953-2010)" International Journal for Numerical and Analytical Methods in Geomechanics 34.6 (2010): 551-553. Print.	April 2010
2.108	Abousleiman, Younane, Ulm, Franz-J, Ortega, J.A., Hoang, Son, Tran, Minh. "Geomechanics field characterization of Woodford Shale and Barnett Shale with advanced logging tools and nano-indentation on drill cuttings" The Leading Edge 29.6 (2010): 730. Print.	June 2010
2.109	*Shahsavari R, Pellenq R.J-M., Ulm FJ. Empirical force fields for complex hydrated calcio-silicate layered materials, PHYSICAL CHEMISTRY CHEMICAL PHYSICS Volume: 13 Issue: 3 Pages: 1002-1011 Published: 2011	2011
2.110	*Krawowiak, KJ; Lourenco, PB; Ulm, FJ. Multitechnique Investigation of Extruded Clay Brick Microstructure; JOURNAL OF THE AMERICAN CERAMIC SOCIETY Volume: 94 Issue: 9 Pages: 3012-3022 DOI: 10.1111/j.1551-2916.2011.04484.x Published: SEP 2011	2011
2.111	Ulm, FJ; James, S. The scratch test for strength and fracture toughness determination of oil well cements cured at high temperature and pressure, CEMENT AND CONCRETE RESEARCH Volume: 41 Issue: 9 Pages: 942-946, Published: SEP 2011	2011
2.112	Manzano, H; Durgun, E; Qomi, MJA; Ulm, FJ; Pellenq, RJM; Grossman, JC. Impact of Chemical Impurities on the Crystalline Cement Clinker Phases Determined by Atomistic Simulations, CRYSTAL GROWTH & DESIGN Volume: 11 Issue: 7 Pages: 2964-2972; Published: JUL 2011	2011
2.113	*Bobko, CP; Gathier, B., Ortega, JA, Ulm, FJ., Borges, L; Abousleiman, YN. The nanogranular origin of friction and cohesion in shale—A strength homogenization approach to interpretation of nanoindentation results; INTERNATIONAL JOURNAL FOR NUMERICAL AND ANALYTICAL METHODS IN GEOMECHANICS Volume: 35 Issue 17 Pages: 1854-1876 DOI: 10.1002/nag.984 Published: DEC 2011	2011
2.114	*Akono AT, Reis PM, Ulm FJ. Scratching as a Fracture Process: from butter to steel, PHYSICAL REVIEW LETTERS Volume: 106 Issue: 20 Article Number: 204302, Published: MAY 20 2011	2011
2.115	*Ortega JA, Gathier B, Ulm FJ. Homogenization of cohesive-frictional strength properties of porous composites: linear comparison composite approach, J. of Nanomechanics & Micromechanics, ASCE, Volume: 1, Number: 1 Pages 11-23 Published: March 2011	2011
2.116	*Akono AT, Ulm FJ. Scratch test model for the determination of fracture toughness, ENGINEERING FRACTURE MECHANICS Volume: 78 Issue: 2 Pages: 334-342 Published: JAN 2011	2011
2.117	Gunes, O; Yesilmen, S; Gunes, B; Ulm, FJ. Use of UHPC in Bridge Structures: Material Modeling and Design; ADVANCES IN MATERIALS SCIENCE AND ENGINEERING, Article Number: 319285 DOI: 10.1155/2012/319285 Published: 2012	2012
2.118	*Akbarian, M; Moeini SSA; Ulm, FJ; Nazzal, M. Mechanistic Approach to Pavement-Vehicle Interaction and its impact on Life Cycle Assessment; Transportation Research Record 2306.-1 (2012): 171-179. [August 2012]	2012
2.119	*Bard, R; Ulm, FJ. Scratch hardness-strength solutions for cohesive-frictional materials; INTERNATIONAL JOURNAL FOR NUMERICAL AND ANALYTICAL METHODS IN GEOMECHANICS Volume: 36 Issue: 3 Pages: 307-326 DOI: 10.1002/nag.1008 Published: FEB 25 2012	2012
2.120	Ulm, FJ. Concrete Innovation Potential: From Atoms to Green Infrastructure; BETON- UND STAHLBETONBAU Volume: 107 Issue: 8 Pages: 504-U79 DOI: 10.1002/best.201200020 Published: AUG 2012	2012

	Publication Name	Publication Date
2.121	*Deirieh, A; Ortega, JA; Ulm, FJ; Abousleiman, Y. Nanochemomechanical assessment of shale: a coupled WDS-indentation analysis; ACTA GEOTECHNICA Volume: 7 Issue: 4 Pages: 271-295 DOI: 10.1007/s11440-012-0185-4 Published: DEC 2012	2012
2.122	Masoero, E; Del Gado, E; Pellenq, RJM; Ulm, FJ; Yip, S. Nanostructure and Nanomechanics of Cement: Polydisperse Colloidal Packing; PHYSICAL REVIEW LETTERS Volume: 109 Issue: 15 Article Number: 155503 DOI: 10.1103/PhysRevLett.109.155503 Published: OCT 10 2012	2012
2.123	Van Vliet, K; Pellenq, R; Buehler, MJ; Grossman, JC; Jennings, H; Ulm, FJ; Yip, S. Set in stone? A perspective on the concrete sustainability challenge; MRS BULLETIN Volume: 37 Issue: 4 Pages: 395-402 DOI: 10.1557/mrs.2012.55 Published: APR 2012	2012
2.124	*Akono, AT; Randall, N.; Ulm FJ. Experimental Determination of the Fracture Toughness via Micro Scratch tests: Application to Polymers, Ceramics and Metals; JOURNAL MATERIALS RESEARCH, January 28. 2012 issue 27(2)	2012
2.125	*Vandamme, M; Tweedie, C; Constantinides, G.; Ulm, FJ; Van Vliet, KJ. Quantifying plasticity-independent creep compliance and relaxation of viscoelastoplastic materials under contact loading; JOURNAL MATERIALS RESEARCH, January 14. 2012 issue 27(1)	2012
2.126	Manzano, H; Pellenq, RJM; Ulm, FJ; Buehler, MJ; van Duin, ACT. Hydration of Calcium Oxide Surface Predicted by Reactive Force Field Molecular Dynamics; LANGMUIR Volume: 28 Issue: 9 Pages: 4187-4197 DOI: 10.1021/la204338m Published: MAR 6 2012	2012
2.127	*Qomi, MJA; Ulm, FJ; Pellenq, Roland J-M. Evidence on the Dual Nature of Aluminum in the Calcium-Silicate-Hydrates Based on Atomistic Simulations; JOURNAL OF THE AMERICAN CERAMIC SOCIETY Volume: 95 Issue: 3 Pages: 1128-1137 DOI: 10.1111/j.1551-2916.2011.05058.x Published: MAR 2012	2012
2.128	Ulm FJ. Nano-Engineering of concrete; ARABIAN JOURNAL FOR SCIENCE AND ENGINEERING Volume: 37 Issue: 2 Pages: 481-488 DOI: 10.1007/s13369-012-0181-x Published: MAR 2012	2012
2.129	*Akono, AT; Ulm FJ. Fracture scaling relations for scratch tests of axisymmetric shape; JOURNAL OF THE MECHANICS AND PHYSICS OF SOLIDS Volume: 60 Issue: 3 Pages: 379-390 DOI: 10.1016/j.jmps.2011.12.009 Published: MAR 2012	2012
2.130	Manzano, H; Moeini, S; Marinelli, F; van Duin, ACT; Ulm, FJ; Pellenq, RJM. Confined Water Dissociation in Microporous Defective Silicates: Mechanism, Dipole Distribution, and Impact on Substrate Properties; JOURNAL OF THE AMERICAN CHEMICAL SOCIETY Volume: 134 Issue: 4 Pages: 2208-2215 DOI: 10.1021/ja209152n Published: FEB 1 2012	2012
2.131	*Vandamme, M.; Ulm, F. -J. Nanoindentation investigation of creep properties of calcium silicate hydrates; CEMENT AND CONCRETE RESEARCH Volume: 52 Pages: 38-52 DOI: 10.1016/j.cemconres.2013.05.006 Published: OCT 2013.	2013
2.132	Robisson, A; Maheshwari, S; Musso, S ; Thomas, JJ; Auzeais, FM; Han, DZ; Qu, M; Ulm, FJ. Reactive elastomeric composites: When rubber meets cement; COMPOSITES SCIENCE AND TECHNOLOGY Volume: 75 Pages: 77-83 DOI: 10.1016/j.compscitech.2012.11.012 Published: FEB 11 2013	2013
2.133	*Ortega, JA, Ulm, FJ. Strength Homogenization of Double-Porosity Cohesive-Frictional Solids; JOURNAL OF APPLIED MECHANICS-TRANSACTIONS OF THE ASME Volume: 80 Issue: 2 Article Number: 020902 DOI: 10.1115/1.4007905 Published: MAR 2013	2013

	Publication Name	Publication Date
2.134	*Brooks, Z.; Ulm, F. -J.; Einstein, H. H. Environmental scanning electron microscopy (ESEM) and nanoindentation investigation of the crack tip process zone in marble; ACTA GEOTECHNICA Volume: 8 Issue: 3 Pages: 223-245 DOI: 10.1007/s11440-013-0213-z Published: JUN 2013	2013
2.135	Botan, A; Vermorel, R; Ulm, FJ; Pellenq, RJM. Molecular Simulations of Supercritical Fluid Permeation through Disordered Microporous Carbons; LANGMUIR Volume: 29 Issue: 32 Pages: 9985-9990 DOI: 10.1021/la402087r Published: AUG 13 2013.	2013
2.136	*Wilson, W; Krakowiak, KJ.; Ulm, FJ, "Simultaneous assessment of phase chemistry, phase abundance and bulk chemistry with statistical electron probe micro-analyses: Application to cement clinkers", CEMENT AND CONCRETE RESEARCH Volume: 55 Pages: 35-48 Published: JAN 2014	January 2014
2.137	Masoero, E; Del Gado, E; Pellenq, RJM; Yip, S; Ulm, FJ, "Nano-scale mechanics of colloidal C-S-H gels", SOFT MATTER Volume: 10 Issue: 3 Pages: 491-499 Published: 2014.	January 2014
2.138	Hantal, G; Brochard, L; Cordeiro, MNDS; Ulm, FJ; Pellenq, RJM, "Surface Chemistry and Atomic-Scale Reconstruction of Kerogen-Silica Composites", JOURNAL OF PHYSICAL CHEMISTRY C Volume: 118 Issue: 5 Pages: 2429-2438 Published: FEB 6 2014.	February 2014
2.139	*Qomi, MJA; Bauchy, M; Ulm, FJ; Pellenq, RJM, "Anomalous composition-dependent dynamics of nanoconfined water in the interlayer of disordered calcium-silicates", JOURNAL OF CHEMICAL PHYSICS Volume: 140 Issue: 5 Article Number: 054515 Published: FEB 7 2014.	February 2014
2.140	Akono, AT, Ulm, FJ, Bažant, Z. "Discussion: Strength-to-fracture scaling in scratching", ENGINEERING FRACTURE MECHANICS Volume: 119 Pages: 21-28 Published: MAR 2014.	March 2014
2.141	*Ardakani, SM; Ulm, FJ, "Chemoelastic Fracture Mechanics Model for Cement Sheath Integrity", JOURNAL OF ENGINEERING MECHANICS Volume: 140 Issue: 4 Article Number: 04013009 Published: APR 2014.	April 2014
2.142	*Akono, AT; Ulm, FJ, "An improved technique for characterizing the fracture toughness via scratch test experiments", WEAR Volume: 313 Issue: 1-2 Pages: 117-124 Published: MAY 15 2014.	May 2014
2.143	Musso, S; Robisson, A; Maheshwar, S; Ulm, FJ, "Stimuli-Responsive Cement-Reinforced Rubber", ACS APPLIED MATERIALS & INTERFACES Volume: 6 Issue: 9 Pages: 6962-6968 Published: MAY 14 2014.	May 2014
2.144	Hantal, G; Brochard, L; Laubie, H; Ebrahimi, D; Pellenq, RJM; Ulm, FJ; Coasne, B. "Atomic-scale modelling of elastic and failure properties of clays" MOLECULAR PHYSICS Volume: 112 Issue: 9-10 Pages: 1294-1305 Published: MAY 19 2014.	May 2014
2.145	Bauchy, M; Qomi, MJA; Ulm, FJ; Pellenq, RJM, "Order and disorder in calcium-silicate-hydrate", JOURNAL OF CHEMICAL PHYSICS Volume: 140 Issue: 21 Article Number: 214503 Published: JUN 7 2014.	June 2014
2.146	Bauchy, M; Qomi, MJA; Bichara, C; Ulm, FJ; Pellenq, RJM, "Nanoscale Structure of Cement: Viewpoint of Rigidity Theory", JOURNAL OF PHYSICAL CHEMISTRY C Volume: 118 Issue: 23 Pages: 12485-12493 Published: JUN 12 2014.	June 2014
2.147	*Laubie, H.; Ulm, FJ, "Irwin's conjecture: Crack shape adaptability in transversely isotropic solids", JOURNAL OF THE MECHANICS AND PHYSICS OF SOLIDS Volume: 68 Pages: 1-13 Published: AUG 2014.	August 2014
2.148	Louhghalam, A; Akbarian, M, Ulm, FJ. "Flügge's Conjecture: Dissipation- versus Deflection-Induced Pavement-Vehicle Interactions" JOURNAL OF ENGINEERING MECHANICS Volume: 140 Issue: 8 Article Number: 04014053 Published: AUG 2014	August 2014

	Publication Name	Publication Date
2.149	*Loughghalam A., Akbarian M., Ulm F.-J. "Carbon management of infrastructure performance: Integrated big data analytics and pavement-vehicle-interactions" JOURNAL OF CLEANER PRODUCTION, Volume 142, Pages 956-964, Published: JAN 2017	September 2014
2.150	*Abdolhosseini Qomi, M J; Krakowiak, K J; Bauchy, M; Stewart, K L; Shahsavari, R; Jagannathan, D; Brommer, D B; Baronnet, A; Buehler, M J; Yip, S; Ulm, F-J; Van Vliet, K J; Pellenq, R J-M, "Combinatorial molecular optimization of cement hydrates", NATURE COMMUNICATIONS Volume: 5 Article Number: 4960 Published: SEP 24 2014.	September 2014
2.151	Del Gado, E; Ioannidou, K; Masoero, E; Baronnet, A; Pellenq, RJM; Ulm, FJ; Yip, S, "A soft matter in construction - Statistical physics approach to formation and mechanics of C-S-H gels in cement", EUROPEAN PHYSICAL JOURNAL-SPECIAL TOPICS Volume: 223 Issue: 11 Pages: 2285-2295 Published: OCT 2014.	October 2014
2.152	Loughghalam A.; Akbarian, M.; Ulm, F. J. "Roughness-Induced Pavement-Vehicle Interactions: Key Parameters and Impact on Vehicle Fuel Consumption" TRANSPORTATION RESEARCH RECORD [03611981] 2525. (2015): 62-70. Print.	December 2014
2.153	Loughghalam, A., Akbarian, M., Ulm, FJ., "Scaling Relationships of Dissipation-Induced Pavement-Vehicle Interactions" TRANSPORTATION RESEARCH RECORD Issue: 2457 Pages: 95-104 Published: 2014.	December 2014
2.154	*Laubie, H; Ulm, FJ. "Plane-Strain Crack Problem in Transversely Isotropic Solids for Hydraulic Fracturing Applications", JOURNAL OF ENGINEERING MECHANICS Volume: 140 Issue: 12 Article Number: 04014092 Published: DEC 2014	December 2014
2.155	Dezerald, L; Kohanoff, JJ; Correa, AA; Caro, A; Pellenq, RJM; Ulm, FJ; Saul, A. "Cement As a Waste Form for Nuclear Fission Products: The Case of Sr-90 and Its Daughters", ENVIRONMENTAL SCIENCE & TECHNOLOGY Volume: 49 Issue: 22 Pages: 13676-13683 Published: NOV 17 2015.	2015
2.156	Falk, K; Pellenq, R; Ulm, FJ; Coasne, B. "Effect of Chain Length and Pore Accessibility on Alkane Adsorption in Kerogen", ENERGY & FUELS Volume: 29 Issue: 12 Pages: 7889-7896 Published: DEC 2015.	2015
2.157	Brochard, L; Hantal, G; Laubie, H; Ulm, FJ; Pellenq, RJM. "Capturing material toughness by molecular simulation: accounting for large yielding effects and limits", INTERNATIONAL JOURNAL OF FRACTURE Volume: 194 Issue: 2 Pages: 149-167 Published: AUG 2015.	2015
2.158	Krakowiak, KJ; Wilson, W; James, S; Musso, S; Ulm, FJ. "Inference of the phase-to-mechanical property link via coupled X-ray spectrometry and indentation analysis: Application to cement-based materials", CEMENT AND CONCRETE RESEARCH Volume: 67 Pages: 271-285 Published: JAN 2015	January 2015
2.159	Krakowiak, KJ; Thomas, JJ; Musso, S; James, S; Akono, AT; Ulm, FJ. "Nano-chemo-mechanical signature of conventional oil-well cement systems: Effects of elevated temperature and curing time"; CEMENT AND CONCRETE RESEARCH Volume: 67 Pages: 103-121 Published: JAN 2015.	January 2015
2.160	*Petersen T.A., Ulm F.-J. "Radial fracture in a three-phase composite: Application to wellbore cement liners at early ages" ENGINEERING FRACTURE MECHANICS Volume: 154 Pages: 272-287 Published: MAR 2016	February 2015
2.161	Botan, A; Ulm, FJ; Pellenq, RJM; Coasne, B. "Bottom-up model of adsorption and transport in multiscale porous media", PHYSICAL REVIEW E Volume: 91 Issue: 3 Article Number: 032133 Published: MAR 20 2015.	March 2015

	Publication Name	Publication Date
2.162	Bousige, C; Botan, A; Ulm, FJ; Pellenq, RJM, Coasne, B. "Optimized molecular reconstruction procedure combining hybrid reverse Monte Carlo and molecular dynamics", JOURNAL OF CHEMICAL PHYSICS Volume: 142 Issue: 11 Article Number: 114112 Published: MAR 21 2015.	March 2015
2.163	Bauchy, M; Qomi, MJA; Bichara, C; Ulm, FJ; Pellenq, RJM. "Rigidity Transition in Materials: Hardness is Driven by Weak Atomic Constraints", PHYSICAL REVIEW LETTERS Volume: 114 Issue: 12 Article Number: 125502 Published: MAR 23 2015.	March 2015
2.164	Bocquet, ML; Coasne, B; Pellenq, RJM; Ulm, FJ. "Organic–Clay Interfacial Chemical Bonds Probed by ab Initio Calculations"; JOURNAL OF PHYSICAL CHEMISTRY C Volume: 119 Issue: 12 Pages: 6511-6517 Published: MAR 26 2015	March 2015
2.165	Falk, K; Coasne, B; Pellenq, RJM; Ulm, FJ; Bocquet, L. "Subcontinuum mass transport of condensed hydrocarbons in nanoporous media", NATURE COMMUNICATIONS Volume: 6 Article Number: 6949 Published: APR 2015	April 2015
2.166	*Abdolhosseini Qomi M. J., Noshadravan A., Sobstyl J. M., Toole J., Ferreira J., Pellenq R. J., Ulm F.-J., Gonzalez M. C. "Data analytics for simplifying thermal efficiency planning in cities" JOURNAL OF THE ROYAL SOCIETY INTERFACE Volume: 13 Issue: 117 Article Number: 20150971 Published: APR 1 2016	June 2015
2.167	*Bain N., Emig T., Ulm F. J., Schreckenberg M. "Velocity statistics of the Nagel-Schreckenberg model" PHYSICAL REVIEW E Volume: 93 Issue: 2 Article Number: 022305 Published: FEB 18 2016	June 2015
2.168	*Qomi, MJA; Ulm, FJ; Pellenq, RJM. "Physical Origins of Thermal Properties of Cement Paste"; PHYSICAL REVIEW APPLIED Volume: 3 Issue: 6 Article Number: 064010 Published: JUN 17 2015	June 2015
2.169	Bauchy, M; Laubie, H.; Qomi, MJA; Hoover, CG; Ulm, FJ; Pellenq, RJM. "Fracture toughness of calcium–silicate–hydrate from molecular dynamics simulations", JOURNAL OF NON-CRYSTALLINE SOLIDS Volume: 419 Pages: 58-64 Published: JUL 1 2015	July 2015
2.170	Obliger A., Pellenq R.J., Ulm F.-J., Coasne B. "Free Volume Theory of Hydrocarbon Mixture Transport in Nanoporous Materials" JOURNAL OF PHYSICAL CHEMISTRY LETTERS Volume: 7 Issue: 19 Pages: 3712-3717 Published: OCT 6 2016	July 2015
2.171	Bousige C., Ghimbeu C. M., Vix-Guterl C., Pomerantz A. E., Suleimenova A., Vaughan G., Garbarino G., Feygenson M., Wildgruber C., Ulm F. J., Pellenq RJM., Coasne B. "Realistic molecular model of kerogen's nanostructure" NATURE MATERIALS Volume: 15 Issue: 5 Pages: 576-+ Published: MAY 2016.	July 2015
2.172	Ioannidou K., Krakowiak K. J., Bauchy M., Hoover C. G., Masoero E., Yip S., Ulm F. J., Levitz P., Pellenq R. J., Del Gado E., "Mesoscale texture of cement hydrates" PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA Volume: 113 Issue: 8 Pages: 2029-2034 Published: FEB 23 2016 2029-2034. Print.	August 2015
2.173	*Petersen T., Ulm F. J. "Early-Age Stress and Pressure Developments in a Wellbore Cement Liner: Application to Eccentric Geometries" JOURNAL OF APPLIED MECHANICS-TRANSACTIONS OF THE ASME Volume: 83 Issue: 9 Article Number: 091012 Published: SEP 2016	August 2015
2.174	Hoover, CG; Ulm, FJ. "Experimental chemo-mechanics of early-age fracture properties of cement paste", CEMENT AND CONCRETE RESEARCH Volume: 75 Pages: 42-52 Published: SEP 2015	September 2015
2.175	*Monfared S., Ulm F.J. "A molecular informed poroelastic model for organic-rich, naturally occurring porous geocomposites" JOURNAL OF THE MECHANICS AND PHYSICS OF SOLIDS Volume: 88 Pages: 186-203 Published: MAR 2016	November 2015

	Publication Name	Publication Date
2.176	Louhghalam, A; Tootkaboni, M; Ulm, FJ. "Roughness-Induced Vehicle Energy Dissipation: Statistical Analysis and Scaling", JOURNAL OF ENGINEERING MECHANICS Volume: 141 Issue: 11 Article Number: 04015046 Published: NOV 2015	November 2015
2.177	Hubler M.H., Ulm F-J. "Size-Effect Law for Scratch Tests of Axisymmetric Shape" JOURNAL OF ENGINEERING MECHANICS, Volume 142, Issue 12, Pages 04016094, PUBLISHED: August 2016	November 2015
2.178	Berthonneau J., Grauby O., Abuhaikal M., Pellenq R.J-M., Ulm FJ., Van Damme H. "Evolution of organo-clay composites with respect to thermal maturity in type II organic-rich source rocks", GEOCHIMICA ET COSMOCHIMICA ACTA, Volume 195, Pages 68-83, Published: DEC 2016	2016
2.179	Abedi S.; Slim, M; Hofmann, R; Bryndzia, T; Ulm, FJ. "Nanochemo-mechanical signature of organic-rich shales: a coupled indentation-EDX analysis", ACTA GEOTECHNICA Volume: 11 Issue: 3 Pages: 559-572 Published: JUN 2016	2016
2.180	Abedi S, Slim M., Ulm F-J. "Nanomechanics of organic-rich shales: the role of thermal maturity and organic matter content on texture", ACTA GEOTECHNICA, Volume 11, Issue 4, Pages 775-787, Published: AUG 2016	2016
2.181	Louhghalam A., Ulm F-J. "Risk of Pavement Fracture due to Eigenstresses at Early Ages and Beyond", JOURNAL OF ENGINEERING MECHANICS, Volume 142, Issue 12, Pages 04016105, Published: SEP 2016	2016
2.182	Bauchy M., Wang B., Wang M., Yu Y., Abdolhosseini Qomi M.J., Smedskjaer M.M., Bichara C., Ulm F-J., Pellenq R. "Fracture toughness anomalies: Viewpoint of topological constraint theory", ACTA MATERIALIA, Volume 121, Pages 234-239, Published: DEC 2016	2016
2.183	L. Atmani, C. Bichara, R. J. Pellenq, H. Van Damme, A. C. Van Duin, Z. Raza, L. A. Truffandier, A. Obliger, P. G. Kralert, F. J. Ulm, et al. "From cellulose to kerogen: molecular simulation of a geological process" Chemical Science [20416520] 8.12 (2017): 8325-8335. Print.	January 2017
2.184	MH Hubler, J Gelb, FJ Ulm, "Microtexture Analysis of Gas Shale by XRM Imaging", Journal of Nanomechanics and Micromechanics 7 (3), 04017005.	2017
2.185	L. Atmani, C. Bichara, R. J-M Pellenq, H. Van Damme, A. CT van Duin, Z. Raza, L. A Truffandier, A. Obliger, P.G. Kralert, F.J. Ulm, J-M. Leyssale, "From cellulose to kerogen: molecular simulation of a geological process", Chemical Science 8 (12), 8325-8335, 2017	2017
2.186	M. Bauchy, M. Wang, Y. Yu, B. Wang, NM A. Krishnan, E. Masoero, F-J. Ulm, R. Pellenq, "Topological Control on the Structural Relaxation of Atomic Networks under Stress", Physical Review Letters, 119(3), 035502.	2017
2.187	*S Monfared, H Laubie, F Radjai, R Pellenq, FJ Ulm "Mesoscale poroelasticity of heterogeneous media", Journal of Nanomechanics and Micromechanics 7 (4), 04017016	2017
2.188	P Kabir, FJ Ulm, AT Akono "Rate-independent fracture toughness of gray and black kerogen-rich shales", Acta Geotechnica 12 (6), 1207-1227.	2017
2.189	K. Ioannidou, E. Del Gado, F. Ulm, R. J. Pellenq "Inhomogeneity in Cement Hydrates: Linking Local Packing to Local Pressure" Journal of Nanomechanics and Micromechanics [21535434] 7.2 (2017): 04017003. Print.	June 2017
2.190	J. Berthonneau, C. G. Hoover, O. Grauby, A. Baronnet, R. J. Pellenq, F. Ulm "Crystal-chemistry control of the mechanical properties of 2:1 clay minerals" Applied Clay Science [01691317] 143. (2017): 387-398. Print.	July 2017

	Publication Name	Publication Date
2.191	M. Bauchy, M. Wang, Y. Yu, B. Wang, N. M. Krishnan, E. Masoero, F. Ulm, R. Pellenq "Topological Control on the Structural Relaxation of Atomic Networks under Stress" <i>Physical Review Letters</i> [00319007] 119.3 (2017): . Print.	July 2017
2.192	H. Laubie, F. Radjaï, R. Pellenq, F. Ulm "A potential-of-mean-force approach for fracture mechanics of heterogeneous materials using the lattice element method" <i>Journal of the Mechanics and Physics of Solids</i> [00225096] 105. (2017): 116-130. Print.	August 2017
2.193	G. Hantal, L. Brochard, R. J. Pellenq, F. Ulm, B. Coasne "Role of Interfaces in Elasticity and Failure of Clay–Organic Nanocomposites: Toughening upon Interface Weakening?" <i>Langmuir</i> [07437463] . (2017): . Print.	August 2017
2.194	H. Laubie, F. Radjai, R. Pellenq, F. Ulm "Stress Transmission and Failure in Disordered Porous Media" <i>Physical Review Letters</i> [00319007] 119.7 (2017): . Print.	August 2017
2.195	M. H. Hubler, J. Gelb, F. Ulm "Microtexture Analysis of Gas Shale by XRM Imaging" <i>Journal of Nanomechanics and Micromechanics</i> [21535434] 7.3 (2017): 04017005. Print.	September 2017
2.196	A. Akono, F. Ulm "Microscopic Toughness of Viscous Solids via Scratching: From Amorphous Polymers to Gas Shale" <i>Journal of Nanomechanics and Micromechanics</i> [21535434] 7.3 (2017): 04017009. Print.	September 2017
2.197	H. Laubie, S. Monfared, F. Radjaï, R. Pellenq, F. Ulm "Effective Potentials and Elastic Properties in the Lattice-Element Method: Isotropy and Transverse Isotropy" <i>Journal of Nanomechanics and Micromechanics</i> [21535434] 7.3 (2017): 04017007. Print.	September 2017
2.198	H. Laubie, S. Monfared, F. Radjaï, R. Pellenq, F. Ulm "Disorder-Induced Stiffness Degradation of Highly Disordered Porous Materials" <i>Journal of the Mechanics and Physics of Solids</i> [00225096] 106. (2017): 207-228. Print.	September 2017
2.199	S. Le Caër, L. Dezerald, K. Boukari, M. Lainé, S. Taupin, R. M. Kavanagh, C. S. Johnston, E. Foy, T. Charpentier, ..., F. J. Ulm, et al. "Production of H ₂ by water radiolysis in cement paste under electron irradiation: A joint experimental and theoretical study" <i>Cement and Concrete Research</i> [00088846] 100. (2017): 110-118. Print.	October 2017
2.200	S. Monfared, H. Laubie, F. Radjai, R. Pellenq, F. Ulm "Mesoscale Poroelasticity of Heterogeneous Media" <i>Journal of Nanomechanics and Micromechanics</i> [21535434] 7.4 (2017): 04017016. Print.	December 2017
2.201	P. Kabir, F. Ulm, A. Akono "Rate-independent fracture toughness of gray and black kerogen-rich shales" <i>Acta Geotechnica</i> [18611125] 12.6 (2017): 1207-1227. Print.	December 2017
2.202	M. J. Abdolhosseini Qomi, D. Ebrahimi, M. Bauchy, R. Pellenq, F. J. Ulm "Methodology for Estimation of Nanoscale Hardness via Atomistic Simulations" <i>Journal of Nanomechanics and Micromechanics</i> [21535434] 7.4 (2017): 04017011. Print.	December 2017
2.203	LKB J Arayro, A Dufresne, T Zhou, K Ioannidou, JF Ulm, R Pellenq, "Thermodynamics, kinetics, and mechanics of cesium sorption in cement paste: A multiscale assessment", <i>Physical Review Materials</i> 2 (5), 053608.	2018
2.204	A. Obliger, F. Ulm, R. Pellenq "Impact of Nanoporosity on Hydrocarbon Transport in Shales' Organic Matter" <i>Nano Letters</i> [15306984] 18.2 (2018): 832-837. Print.	February 2018
2.205	*M. Abuhaikal, K. Ioannidou, T. Petersen, R. J. Pellenq, F. Ulm "Le Châtelier's Conjecture: Measurement of Colloidal Eigenstresses in Chemically Reactive Materials" <i>Journal of the Mechanics and Physics of Solids</i> [00225096] 112. (2018): 334-344. Print.	March 2018

	Publication Name	Publication Date
2.206	K. J. Krakowiak, J. J. Thomas, S. James, M. Abuhaikal, F. Ulm "Development of silica-enriched cement-based materials with improved aging resistance for application in high-temperature environments" <i>Cement and Concrete Research</i> [00088846] 105. (2018): 91-110. Print.	March 2018
2.207	*J. M. Sobstyl, T. Emig, M. J. Qomi, F. J. Ulm, R. J. Pellenq "Role of City Texture in Urban Heat Islands at Nighttime" <i>Physical Review Letters</i> [00319007] 120.10 (2018): . Print.	March 2018
2.208	M. Gonzalez-Andrades, R. Sharifi, M. M. Islam, T. Divoux, M. Haist, E. I. Paschalis, L. Gelfand, S. Mamodaly, L. Di Cecilia, ..., F. Ulm, et al. "Improving the practicality and safety of artificial corneas: Pre-assembly and gamma-rays sterilization of the Boston Keratoprosthesis" <i>The Ocular Surface</i> [15420124] 16.3 (2018): 322-330. Print.	April 2018
2.209	A. Louhghalam, R. J. Pellenq, F. Ulm "Thermalizing and Damping in Structural Dynamics" <i>Journal of Applied Mechanics</i> [00218936] 85.8 (2018): 081001. Print.	May 2018
2.210	*S. Monfared, H. Laubie, F. Radjai, M. Hubler, R. Pellenq, F. Ulm "A methodology to calibrate and to validate effective solid potentials of heterogeneous porous media from computed tomography scans and laboratory-measured nanoindentation data" <i>Acta Geotechnica</i> [18611125] . (2018): . Print.	July 2018
2.211	*T. Al-Mulla, R. J. Pellenq, F. Ulm "Griffith's postulate: Grand Canonical Monte Carlo approach for fracture mechanics of solids" <i>Engineering Fracture Mechanics</i> [00137944] 199. (2018): 544-554. Print.	August 2018
2.212	*K. Keremides, M. J. Abdolhosseini Qomi, R. J. Pellenq, F. Ulm "Potential-of-Mean-Force Approach for Molecular Dynamics–Based Resilience Assessment of Structures" <i>Journal of Engineering Mechanics</i> [07339399] 144.8 (2018): 04018066. Print.	August 2018
2.213	A. Dufresne, J. Arayro, T. Zhou, K. Ioannidou, F. Ulm, R. Pellenq, L. K. Béland "Atomistic and mesoscale simulation of sodium and potassium adsorption in cement paste" <i>The Journal of Chemical Physics</i> [00219606] 149.7 (2018): 074705. Print.	August 2018
2.214	*T. Petersen, P. Valdenaire, R. Pellenq, F. Ulm "A reaction model for cement solidification: Evolving the C–S–H packing density at the micrometer-scale" <i>Journal of the Mechanics and Physics of Solids</i> [00225096] 118. (2018): 58-73. Print.	September 2018
2.215	T. Petersen, M. Z. Bazant, R. J. Pellenq, F. Ulm "Phase separation of stable colloidal clusters" <i>Physical Review Materials</i> [24759953] 2.9 (2018): . Print.	September 2018
2.216	*J Hester, J Gregory, FJ Ulm, R Kirchain, "Building design-space exploration through quasi-optimization of life cycle impacts and costs", <i>Building and Environment</i> 144, 34-44.	October 2018
2.217	A Obliger, PL Valdenaire, N Capit, FJ Ulm, RJM Pellenq, JM Leyssale, "Poroelasticity of methane-loaded mature and immature kerogen from molecular simulations", <i>Langmuir</i> 34 (45), 13766-13780.	October 2018
2.218	A. Obliger, P. Valdenaire, N. Capit, F. J. Ulm, R. J. Pellenq, J. Leyssale "Poroelasticity of Methane-Loaded Mature and Immature Kerogen from Molecular Simulations" <i>Langmuir</i> [07437463] . (2018): . Print.	November 2018
2.219	J. Berthonneau, A. Obliger, P. Valdenaire, O. Grauby, D. Ferry, D. Chaudanson, P. Levitz, J. J. Kim, F. Ulm, R. J. Pellenq "Mesoscale structure, mechanics, and transport properties of source rocks' organic pore networks" <i>Proceedings of the National Academy of Sciences of the United States of America</i> [00278424] . (2018): 201808402. Print.	November 2018
2.220	A. Louhghalam, M. Tootkaboni, T. Igusa, F. J. Ulm "Closed-Form Solution of Road Roughness-Induced Vehicle Energy Dissipation" <i>Journal of Applied Mechanics</i> [00218936] 86.1 (2019): 011003. Print.	January 2019

	Publication Name	Publication Date
2.221	M. Slim, S. Abedi, L. T. Bryndzia, F. Ulm "Role of Organic Matter on Nanoscale and Microscale Creep Properties of Source Rocks" Journal of Engineering Mechanics [07339399] 145.1 (2019): 04018121. Print.	January 2019
2.222	T. Zhou, K. Ioannidou, F. Ulm, M. Z. Bazant, R. J. Pellenq "Multiscale poromechanics of wet cement paste" Proceedings of the National Academy of Sciences of the United States of America [00278424] 116.22 (2019): 10652-10657. Print.	May 2019
2.223	A. Obliger, P. Valdenaire, F. Ulm, R. J. Pellenq, J. Leyssale "Methane Diffusion in a Flexible Kerogen Matrix" Journal of Physical Chemistry B [15206106] 123.26 (2019): 5635-5640. Print.	July 2019
2.224	L Atmani, PL Valdenaire, RJM Pellenq, C Bichara, H Van Damme, A CT Van Duin, FJ Ulm, J-M Leyssale, "Simulating the geological fate of terrestrial organic matter: Lignin vs Cellulose", Energy & Fuels 34 (2), 1537-1547.	January 2020
2.225	P. Valdenaire, R. J. Pellenq, F. J. Ulm, A. C. Van Duin, J. Leyssale "Timescale prediction of complex multi-barrier pathways using flux sampling molecular dynamics and 1D kinetic integration: Application to cellulose dehydration" The Journal of Chemical Physics [00219606] 152.2 (2020): 024123. Print.	January 2020
2.226	J. Roxon, F. J. Ulm, R. Pellenq "Urban heat island impact on state residential energy cost and CO2 emissions in the United States" Urban Climate [22120955] 31. (2020): 100546. Print.	March 2020
2.227	P. Valdenaire, J. Perrin, O. Grauby, F. Ulm, R. J. Pellenq "A simple way to use X-ray microtomography to infer elastic properties of heterogeneous materials: application to sedimentary rocks" Journal of Materials Science [00222461] 55.8 (2020): 3347-3353. Print.	March 2020
2.228	Y Magnin, J Berthonneau, N Chanut, D Ferry, O Grauby, R Jorand, FJ Ulm, E. Chaput, R.J-M. Pellenq, "Hydrocarbon Diffusion in Mesoporous Carbon Materials: Implications for Unconventional Gas Recovery", ACS Applied Nano Materials 3 (8), 7604-7610	July 2020
2.229	HC Loh, T Divoux, B Gludovatz, PUPA Gilbert, RO Ritchie, FJ Ulm, A. Masic, "Nacre toughening due to cooperative plastic deformation of stacks of co-oriented aragonite platelets", Communications Materials 1 (1), 1-10.	October 2020
2.230	*M Botshekan, J Roxon, A Wanichkul, T Chirananthavat, J Chamoun, M Ziq, B Anini, N Daher, A Awad, W Ghanem, M Tootkaboni, A Louhghalam, F-J Ulm, "Roughness-induced vehicle energy dissipation from crowdsourced smartphone measurements through random vibration theory", Data-Centric Engineering , Volume 1 , 2020 , e16	December 2020
2.231	N. A. Soliman, N. Chanut, V. Deman, Z. Lallas, F. Ulm "Electric energy dissipation and electric tortuosity in electron conductive cement-based materials" Physical Review Materials [24759953] 4.12 (2020): . Print.	December 2020
2.232	S. Monfared, T. Zhou, J. E. Andrade, K. Ioannidou, F. Radjaï, F. Ulm, R. J. Pellenq "Effect of Confinement on Capillary Phase Transition in Granular Aggregates" Physical Review Letters [00319007] 125.25 (2020): . Print.	December 2020
2.233	*T Mulla, S Moeini, K Ioannidou, RJM Pellenq, FJ Ulm, "Phase diagram of brittle fracture in the semi-grand-canonical ensemble", Physical Review E 103 (1), 013003	January 2021
2.234	E Villiermaux, K Keremidis, N Vandenberghe, MJ Abdolhosseini Qomi, F-J Ulm, "Mode Coarsening or Fracture: Energy Transfer Mechanisms in Dynamic Buckling of Rods", Phys. Rev. Lett. 126, 045501.	January 2021
2.235	*M Botshekan, E Asaadi, J Roxon, FJ Ulm, M Tootkaboni, A Louhghalam, "Smartphone-enabled road condition monitoring: from accelerations to road roughness and excess energy dissipation", Proceedings of the Royal Society A 477 (2246), 20200701.	February 2021

	Publication Name	Publication Date
2.236	H. Loh, H. Kim, F. Ulm, A. Masic "Time-Space-Resolved Chemical Deconvolution of Cementitious Colloidal Systems Using Raman Spectroscopy" <i>Langmuir</i> [07437463] 37.23 (2021): 7019-7031. Print.	June 2021
2.237	A. Goyal, I. Palaia, K. Ioannidou, F. Ulm, H. Van Damme, R. J. Pellenq, E. Trizac, E. Del Gado "The physics of cement cohesion" <i>Science Advances</i> [23752548] 7.32 (2021): . Print.	August 2021
2.238	J Gregory, H AzariJafari, E Vahidi, F Guo, FJ Ulm, R Kirchain, "The role of concrete in life cycle greenhouse gas emissions of US buildings and pavements", <i>Proceedings of the National Academy of Sciences</i> 118 (37).	September 2021
2.239	*M Botshekan, FJ Ulm, "Spatial and temporal memory effects in the Nagel-Schreckenberg model for crowdsourced traffic property determination", <i>Physical Review E</i> 104 (4), 044102.	October 2021
2.240	M Haist, T Divoux, KJ Krakowiak, J Skibsted, RJM Pellenq, HS Müller, FJ. Ulm, "Creep in reactive colloidal gels: a nanomechanical study of cement hydrates", <i>Physical Review Research</i> 3 (4), 043127.	November 2021
2.241	X Wang, M Botshekan, FJ Ulm, M Tootkaboni, A Louhghalam, "A hybrid potential of mean force approach for simulation of fracture in heterogeneous media", <i>Computer Methods in Applied Mechanics and Engineering</i> 386, 114084.	December 2021

3. Proceedings of Refereed Conferences

	Publication Name	Publication Date
3.1	Vonk, R.A., Rots, J.G., Kanstad, T., Ulm, F.-J., Navratil, J., "Examples of evaluation of computer codes for creep and shrinkage analysis of concrete structures", <i>idem</i> , 889—924.	January 1993
3.2	Ulm, F.-J., Clement, J.L., Brioist, J.J. "Analysis of RC structures under seismic loading using multifiber beam elements", <i>idem</i> , BA33--BA42 [in French].	January 1993
3.3	Ulm, F.-J., Clement, J.L., Argoul, P., "Behavior factor: the loss of frequency approach", <i>Proc. 3rd Colloque National de Génie Parasismique</i> , St. Rémy-Lés-Chevreuse, March 1993, AFPS (French association for Earthquake Engineering), MC49-MC56 [in French].	March 1993
3.4	Ulm, F.-J., Clement, J.L., Gregeois, B., "Lateral buckling analysis of RC-beams using multifiber beam elements", <i>Proc. Colloque National en Calcul des Structures</i> , Giens(Var), May 1993, Ed. Hermès, Paris, 133—142 [in French].	May 1993
3.5	Ulm, F.-J., "Analysis of reinforced concrete structures using multifiber beam elements". <i>Proc. Concours Jeunes Chercheurs - Prix René Houpert</i> , Nîmes, May 1993, AUGC (French Civil Engineering Academia Association), 113—120 [in French]. René Houpert Award Lecture	May 1993
3.6	Ulm, F.-J., Humbert, P., Magnat, V., "A new modelling of prestressing in CESAR-LCPC", <i>Proc. Int. Workshop External Prestressing in Structures. Non-Linear Calculation Tests of Prestressed Beams</i> , St. Rémy-Lés-Chevreuse, June 1993, ed. by E. Conti and R. Tardy, AFPC (French Association for Construction), Paris, 51—61.*	June 1993
3.7	Ulm, F.-J., Clement, J.L., "Lateral buckling analysis of R/C girders using multifiber beam elements", <i>Proc. 5th Int. Conf. on Civil and Struct. Engineering Computing: Developments in Structural Engineering Computing</i> , Herriot-Watt University, Edinburgh, Scotland, August 1993, ed. by B.H.V Topping, Civil-Comp-Press, Edinburgh, UK, 103—112.	August 1993

	Publication Name	Publication Date
3.8	Ulm, F.-J., Guggenberger, J., "3D nonlinear time-dependent analysis of RC and PC beams", Proc. 5th Int. RILEM Symp. ConCreep 5: Creep and Shrinkage of Concrete, Barcelona, September 1993, ed. By Z.P. Bažant and I. Carol, E & FN Spon, London UK, 573—578.*	September 1993
3.9	*Casanova, P., Fliedner, M., Rossi, P., Ulm, F.-J., "Finite Element Analysis of shear in RC girders", idem. Analysis and Computations, ed. by F.Y. Cheng, ASCE, New York, 223—229.	January 1994
3.10	Ulm, F.-J., "Modelling of prestressing of concrete structures : a boundary condition problem of slip at interface", Proc. Euro-C '94: Computational Modelling of Concrete Structures, Innsbruck, Austria, March 1994, ed. by H. Mang, N. Bicanic and R. de Borst, Pineridge Press Ltd., Swansea, UK, Vol.2, 785—794.	March 1994
3.11	*Ulm, F.-J., Clement, J.L., Guggenberger, J., "Recent advances in 3D non-linear FE-analysis of R/C and P/C beam structures", Proc. 12th Int. ASCE Structural Congress, Atlanta, Georgia, US, April 1994, ed. by N.C. Baker and B.J. Goodno, Vol. II, ASCE, New York, 1427—1432.	April 1994
3.12	*Toutlemonde, F., Piermattei, E., Ulm, F.-J., Rossi, P., "Visco-gradient damage model in high rate dynamics: the LCPC-Experience", idem, 1559—1570.	January 1995
3.13	Rossi, P., Ulm, F.-J. (1995). "A strategy for analysing the mechanical behaviour of concrete structures under various loading: the LCPC experience", idem, Vol.II, 1271—1284.	January 1995
3.14	Rossi, P., Ulm, F.-J., "Size effects in the biaxial tensile-compressive behaviour of concrete: physical mechanisms and modelling", idem, Vol.I, 543—556.	January 1995
3.15	Coussy, O., Ulm, F.-J., "Creep and plasticity due to chemo-mechanical couplings", Proc. COMPLAS IV: Computational Plasticity. Fundamentals and Applications, Barcelona, April 1995, ed. by E. Onate, D.R. Owen and E. Hinton, Pineridge Press Ltd., Swansea, UK, 925—944.	April 1995
3.16	Ulm, F.-J., Elouard, A., Rossi, P., "Modelling of early age concrete cracking due to thermo-chemomechanical couplings", Proc. FRAMCOS-2: Fracture Mechanics of Concrete Structures, E.T.H. Zurich, July 1995, ed. by F.H. Wittmann, AEDIFICATIO Publisher, Vol.II, 1443—1458.	July 1995
3.17	*Sercombe, J., Ulm, F.-J., Toutlemonde, F., "Modeling of concrete in high rate dynamics". Proc. Eurodyn '96: Structural Dynamics, ed. by G. Augusti, C. Borri, P. Spinelli, A.A. Balkema, Rotterdam-Brookfield, Vol.I, 481—488.	January 1996
3.18	*Sercombe, J., Ulm, F.-J., Toutlemonde, F., "Modeling of concrete under high rate dynamics", Proc. 4ème Colloque National AFPS: Génie parasismique et aspects vibratoires dans le génie civil, St. Rémy-Lés-Chevreuse, April 1996, AFPS, 381—390 [in French].	April 1996
3.19	Ulm, F.-J., Schaller, I., Chauvel, D., Rossi, P., de Larrard, F., "Minimum Reinforcement in nuclear cooling towers: FE-Durability analysis of concrete cracking due to drying", Proc. HPC 96: 4th Int. Symposium on Utilization of High-Strength/High performance concrete, May 1996, ed. by F. de Larrard and R. Lacroix, Presses de l'ENPC, Paris, Vol.3, 1163—1173.	May 1996
3.20	*Sercombe, J., Ulm, F.-J., "Viscous hardening plasticity for concrete in high rate dynamics", idem, Vol.2, 1556—1561.	January 1997
3.21	*Désir, J.-M., Ulm, F.-J., Fairbairn, E.M.R., "The steel-concrete interface revisited", idem, Vol. II, 561-568.	January 1997
3.22	*Hellmich, Ch., Ulm, F.-J., Mang, H.A., "Chemoplasticity for shotcrete at early ages", Proc. COMPLAS V: Computational Plasticity. Fundamentals and Applications, Barcelona, March 1997, ed. by D.R.J. Owen, E. Onate and E. Hinton, CIMNE, Barcelone, Spain, Vol.2, 1499—1507.	March 1997

	Publication Name	Publication Date
3.23	*Aouameur, A., Ulm, F.-J., Humbert, P., "A generalisation of multi-layer shell-elements for the nonlinear analysis of structures with internal variables constitutive laws", Proc. 3rd Colloque National en Calcul des Structures, Giens(Var), May 1997, ed. by B. Peseux, D. Aubry, J.-P. Pelle, M. Touratier, Presses Académique de l'Ouest, Paris, 627—632 [in French].	May 1997
3.24	Fairbairn, E.M.R., Guedes, Q. M., Ulm, F.-J., "An algorithm for the solution of the inverse problem on the determination of the constitutive equation for concrete within the framework of an FEM probabilistic analysis", Proc. ANAIS do XVIII CILAMCE: Congresso Ibero-Latino-Americano de Metodos Computacionais em Engenharia, October 1997, Brasilia, Vol. II, 577—584.	October 1997
3.25	Ulm, F.-J., "Concrete Cracking", Proc.: Les 2e Entretiens de la Physique. Milieux Hétérogènes et Génie Civil, ed. by P. Lemoine and H. Arriabart, Société Française de Physique / Conseil National des Ingénieurs et des Scientifiques de France, October 9/10, 1997, Paris, 141—149 [in French].	October 1997
3.26	Bazant, Z.-P., Ulm, F.-J., Beltoise, F., "Propagation of concentration jump interfaces as a ratecontrolling mechanism of diffusion in concrete", idem, 1150—1153.	January 1998
3.27	*Ben Romdhane, M.R., Rossi, P., Ulm, F.-J., "Micro-mechanical analysis of the steel-concrete interface behaviour", idem, 731—740.	January 1998
3.28	*Fejér, T., Aouameur, A., Ulm, F.-J., "Anisotropic plasticity features of steel-mat reinforcement in concrete plates and shells", idem, 163—171.	January 1998
3.29	*Sercombe, J., Toutlemonde, F., Ulm, F.-J., "From material behavior to structural design in high rate dynamics", idem, 633—642.	January 1998
3.30	*Hellmich, Ch., Ulm, F.-J., Mang, H.A., "Enlighting the soil-shotcrete interaction problem governing the NATM using visco- and chemoplastic material laws", idem, 855—865.	January 1998
3.31	Ulm, F.-J., Rossi, P., Fairbairn, E.M.R., "Probabilistic FE-analysis of concrete cracking due to chemohygral swelling", idem, 1263—1266.	January 1998
3.32	Ulm, F.-J., Coussy, O., "Fracture creep and shrinkage due to chemomechanical couplings", idem, 1138—1141.	January 1998
3.33	Ulm, F.-J., Coussy, O., Hellmich, Ch., "Chemoplasticity: a review of evidence", Proc. Euro-C '98: Computational Modelling of Concrete Structures, Bad Gastein, Austria, March/April 1998, ed. by R. de Borst, N. Bicanic, H. Mang and G. Meschke, A.A. Balkema, Rotterdam, 421—439.	March 1998
3.34	Ulm, F.-J., Coussy, O., Stéfani, C., "Rutting due to cyclic hardening plasticity in bituminous pavements", Proc. 12th Engineering Mechanics Conference, La Jolla, May 1998), ed. by J.E. Luco and H. Murakimi, ASCE, New York, 1090—1093.	May 1998
3.35	*Kovacs, I., Ulm, F.-J., Balazs, G.L., "Modeling plastic matrix-fiber interaction in fiber reinforced concrete", Proc. 2nd Int. PhD Symposium in Civil Engineering, Budapest, August 1998, ed. by G.L. Balazs, Publishing Company TU Budapest, Hungary, 15—22.	August 1998
3.36	Clement, J.L., Paschetta, W., Prat, M., Ulm, F.-J., "Use of the finite elements for the design of prestressed structures -Application des éléments finis au calcul des ouvrages précontraints", Proc. XIII FIP-congress: The French Technology of Concrete, Amsterdam September 1998, ed. by AFPCAFREM, 163—169.	September 1998
3.37	*Hellmich, Ch., Mang H.A., Ulm, F.-J., "Thermochemomechanical couplings for shotcrete: application to NATM-tunneling", idem.	January 1999
3.38	*Desir, J.M., Ulm, F.-J., Fairbairn, E.M.R., "Simulation of pull-out test with a new steel-concrete interface model", idem.	January 1999

	Publication Name	Publication Date
3.39	*Fairbairn, E.M.R., Alves, J.L.D., Ferreira, I.A., Ulm, F.-J. "Implementacao do modelo de acoplamentos no MEF: Simulacao do uso do concreto projetado na execucao de tuneis", CD-ROM proc. Computational Methods in Engineering'99 - XX CILAMCE, 20th Iberian Latin-American Congress in Computational Methods in Engineering, ed. by P.M. Pimenta, R.M.L.R.F. Brasil and E.S. Almeida N., November 1999, Sao Paolo, Brazil.	January 1999
3.40	Sercombe, J., Ulm, F.-J., Mang H.A., "Numerical solutions for chemoplastic models with internal couplings", idem.	January 1999
3.41	Ulm, F.-J., Rossi, P., Schaller, I., Chauvel, D., "Durability scaling of HPC-structures using the probabilistic crack approach", Proc. 1999 New Orleans Structural Congress: Structural Engineering in the 21st Century, April 1999, ed. by R.R. Avent and M. Alawady, ASCE--SEI, 203—206.	April 1999
3.42	*Ulm, F.-J., Kovacs, I., "Modeling of matrix-fiber couplings in brittle composites", CD-ROM proc. 13th Engineering Mechanics Conference, ed. by N.P. Jones and R.G. Ghanem, Baltimore, June 1999, ASCE.	June 1999
3.43	Hellmich, Ch., Mang H.A., Ulm, F.-J., "Hybrid method for quantification of stress states in shotcrete tunnel shells: combination of 3D in situ displacement measurements and thermochemoplastic material law", CD-ROM proc. ECCM '99: European Conf. on Computational Mechanics, ed. by W. Wunderlich, September 1999, Munich, Germany.	September 1999
3.44	*Aouameur, A., Semblat, J.-F., Ulm, F.-J., "Nonlinear seismic response of a RC building mock-up: numerical modelling by multilayered shell elements", CD-Rom Proc. 12WCEE: 12th World Congress of Earthquake Engineering, New Zealand, January 2000, Paper 0338.	January 2000
3.45	Dormieux, L., Lemarchand, E., Ulm, F.-J., "Micromechanical approach to the modeling of swelling due to alkali-silica reaction", idem.	January 2000
3.46	*Heukamp, F.H., Ulm, F.-J., Germaine, J.T., "Triaxial Behavior of Calcium Depleted Cementitious Materials", CD-ROM proc. 14th ASCE Engineering Mechanics Conference, ed. by J.L. Tassoulas, Austin, TX, May 2000.	May 2000
3.47	*Li, K., Ulm, F.-J., Coussy, O., Larive, C., Fan, L., "Chemoelastic modeling of Alkali-Silica reaction in concrete", Proc. 11th International Conference on Alkali-Aggregate reaction, Quebec, August 2000, 989—998.	August 2000
3.48	*Chuang, E., Overland, M., Ulm, F.-J., "Length scales of fiber reinforced cementitious composites – a Review", idem, 35—42.	January 2001
3.49	*Li, K., Ulm, F.-J., Coussy, O., "Durability assessment of ASR-induced structural concrete degradation by a consistent model-based diagnosis-prognosis methodology", idem, 499—504.	January 2001
3.50	Lemarchand, E., Dormieux, L., Ulm, F.-J., "A micromechanical approach to the modeling of swelling due to Alkali-Silica Reaction", idem, 477—484.	January 2001
3.51	Hellmich, Ch., Ulm, F.-J., "Computational thermochemomechanics of low-sulfate shotcrete in tunneling", idem, 1236—1240.	January 2001
3.52	*Heukamp, F.H., Mainguy, M., Ulm, F.-J., "Beyond the crack size criterion: The effect of a fracture on calcium depletion of cementitious materials", idem, 215—221.	January 2001
3.53	Ulm, F.-J., Heukamp, F.H., Germaine, J.T., "Durability mechanics of calcium leaching of concrete and beyond", Proc. FramCos-4, Int. Conf. On Fracture Mechanics of Concrete and Concrete Structures, ed. by R. de Borst and J. Mazars, Paris, May-June 2001, Balkema Publisher, 133—143.	June 2001

	Publication Name	Publication Date
3.54	*Silva, E.C., Ulm, F.-J., "A bio-chemo-mechanics approach to bone remodeling and fracture", In: B.L. Karihaloo (Ed.) Proc. IUTAM Symposium on Analytical and Computational Fracture Mechanics of Non-Homogeneous Materials, Cardiff June 2001, Kluwer Academic Publishers, Dordrecht – Boston – London, 2002, 355—366.	June 2001
3.55	*Mainguy, M., Ulm, F.-J., Heukamp, F.H., "Model-Based Simulation of Demineralization Processes in Cracked Porous Media", Proc. 1st MIT Conference on Computational Mechanics of Fluid & Solids, ed. by K.J. Bathe, Vol. 2, June, 2001, MIT, Elsevier Science, 1309—1313.	June 2001
3.56	Coussy, O., Ulm, F.-J., "Elements of Durability Mechanics of Concrete Structures", Proc. CONCREEP-6, Creep, Shrinkage and Durability Mechanics of Concrete and Other Quasi-Brittle Materials, ed. by F.-J. Ulm, Z.P. Bazant and F.H. Wittmann, Cambridge, August 2001, Elsevier Science, 393—409.	August 2001
3.57	Hellmich, C., Macht, J., Lackner, R., Mang, H., Ulm, F.-J., "Phase transitions in shotcrete: from material modeling to structural safety assessment", Proc. Int. Conference on Engineering Developments in Shotcrete, ed. By S. Bernard, Hobart Tasmania, August 2001, Balkema, Rotterdam, 173—184.	August 2001
3.58	*Heukamp, F.H., Ulm, F.-J., Germaine, J.T., "The consequences of calcium leaching on structural integrity of concrete containment structures: New experimental evidence from triaxial tests on mortars and cement pastes", Proc. SMiRT-16, 16th Int. Conf. on Structural Mechanics in Reactor Technology, Washington August 2001.	August 2001
3.59	Hellmich, Ch., Ulm, F.-J., "A unified continuum micromechanics approach to the ultrastructural elasticity of mineralized tissues", CD-ROM proc. 15th ASCE Engineering Mechanics Conference, ed. by A.W. Smyth, New York, June 2002.	June 2002
3.60	*Chuang, E., Park, H., Ulm F.-J., "Ductility Assessment of HP2C Structures: From Material Modeling to Model-Based Structural Simulation", idem, 139—148.	January 2003
3.61	*Ulm F.-J., Constantinides, G., Heukamp, F.H., Silva, E.C., Germaine, J.T., Lemarchand, E., Hellmich, Ch., Bernard, O. "[Bio-]Chemomechanics at Finer Scales – a Review", Proc. Euro-C '03: Computational Modelling of Concrete Structures, Austria, March 2003, ed. by N. Bicanic, R. de Borst, H. Mang and G. Meschke, A.A. Balkema, Lisse, The Netherlands, 2003, 347—360.	March 2003
3.62	*Chuang, E., Ulm F.-J., "Size independence of UHPC ductility", idem, Vol. II, 1067—1074.	January 2004
3.63	*Constantinides, G., Ulm, F.-J. "Multi-scale poro-elastic properties of cement-based materials", Proc. FramCos-5, Int. Conf. On Fracture Mechanics of Concrete and Concrete Structures, Colorado, April 2004, ed. by V. Li, C.K.Y. Leung, K.J. Willam, S.L. Billington, Ia-FraMCos, USA, Vol. I, 539—546.	April 2004
3.64	E. Lemarchand, L. Dormieux, F. Ulm "A Micromechanics Approach to the Mechanically-Induced Dissolution in Porous Media" Solid Mechanics and Its Applications (IUTAM Symposium on Physicochemical and Electromechanical Interactions in Porous Media) [Conference] 125. (2005): 321-327. Print.	2005
3.65	*Ulm, F.-J., Constantinides, G., Delafargue, A., Abousleiman, Y. Ewy, R., Duranti, L, McCarty, D.K., "Material invariant poromechanics properties of shales", idem, 637—644.	January 2005
3.66	Lemarchand, E., Dormieux, L., Ulm, F.-J., "A micromechanics approach to the mechanically-induced dissolution in porous media", IUTAM Symposium on Physicochemical and Electromechanical Interactions in Porous Media, Solid Mechanics and its application Vol. 125, ed. by G. M. L. Gladwell, J.M. Huyghe, Peter A.C. Raats and Stephen C. Cowin, Springer Netherlands, 2005, 321- 327.	January 2005

	Publication Name	Publication Date
3.67	Ganguly, P., Ulm, F.-J., "Effect of large-strain deformation on surface remodeling characteristics in porous materials", PoroMechanics III – Biot Centennial (1905–2005), Proc. Of the 3rd Biot Conference on Poromechanics, Norman, Oklahoma, May 2005, ed. by Y.N. Abousleiman, A.H.-D. Cheng, F.-J. Ulm, A.A. Balkema, London, UK, 121–127.	May 2005
3.68	Ulm, Franz, Hoang, Son, Tran, Minh, Abousleiman, Younane, Ortega, Alberto, et al. "Geomechanics Field and Laboratory Characterization of the Woodford Shale: The Next Gas Play" SPE Technical Conference and Exhibition . (2007): . Print.	January 2007
3.69	Ulm FJ, Vandamme M, Bobko C, Ortega JA, The Nanogranular Nature of Hydrated Nanocomposites: Concrete, Clay and Bone, In: M. Jirasek, Modelling of heterogeneous materials with applications in construction and biomedical engineering, Proc. Int. Conf., Prague, Czech Republic, June 25-27, 2007 http://mech.fsv.cvut.cz/mhm2007/mhm2007_proceedings.pdf	June 2007
3.70	Abousleiman Y, Tran M, Hoang S, Bobko C, Ortega JA, Ulm FJ, Geomechanics Field and Laboratory Characterization of Woodford Shale: The Next Gas Play, SPE-paper 110120, SPE Annual Technical Conference and Exhibition, Nov 11 – 14, 2007, Anaheim, Ca.	November 2007
3.71	Ulm, Franz, Abousleiman, Younane, Bobko, Christopher, Hoang, Son, Ortega, Alberto, et al. "Geomechanics Field and Laboratory Characterization of the Woodford Shale: The Next Gas Play" SPE Technical Conference and Exhibition . (2007): . Print.	November 2007
3.72	F. J. Ulm, M. Vandamme "Probing Nano-structure of C-S-H by Micro-mechanics Based Indentation Techniques" Nanotechnology in Construction [Conference] . (2009): 43-53. Print.	2009
3.73	G. Constantinides, J. F. Smith, F. J. Ulm "Nanomechanical Explorations of Cementitious Materials: Recent Results and Future Perspectives" Nanotechnology in Construction [Conference] . (2009): 63-69. Print.	2009
3.74	Ortega JA, Bobko C, Ulm FJ, Abousleiman Y. The Nanogranular Origin of Macroscopic Elasticity Properties of Geomaterials. PORO-MECHANICS IV Pages: 752-757 Published: 2009	January 2009
3.75	Vandamme M, Ulm FJ. Nano-Porosity as the Governing Parameter of Creep of Calcium-Silicate-Hydrates. PORO-MECHANICS IV Pages: 746-751 Published: 2009	January 2009
3.76	Ulm FJ. The Nanogranular Nature of Hydrated Porous Materials: Concrete, Shale and Bone. 4th Biot Conference on Poromechanics, JUN 08-10, 2009 Columbia Univ, New York, NY. POROMECHANICS IV Pages: 57-68 Published: 2009	2009
3.77	Constantinides G, Smith JF, Ulm FJ. Nanomechanical Explorations of Cementitious Materials: Recent Results and Future Perspectives. NANOTECHNOLOGY IN CONSTRUCTION 3, PROCEEDINGS Pages: 63-69 Published: 2009.	January 2009
3.78	Ulm FJ, Vandamme M. Probing Nano-structure of C-S-H by Micro-mechanics Based Indentation Techniques. 3rd International Symposium on Nanotechnology in Construction, MAY 31-JUN 02, 2009 Prague, CZECH REPUBLIC. NANOTECHNOLOGY IN CONSTRUCTION 3, PROCEEDINGS Pages: 43-53 Published: 2009 Keynote lecture	January 2009
3.79	Bobko CP, Ulm FJ. Assessing the Nanogranular Morphology, and Strength of Porous Clay in Shale by Nanoindentation. PORO-MECHANICS IV Pages: 765-770 Published: 2009	January 2009
3.80	Tran MH, Abousleiman YN, Hoang SK, Ortega JA, Ulm FJ. The Make Up of Nano-Indentation in Engineering Applications. PORO-MECHANICS IV Pages: 758-764 Published: 2009	January 2009
3.81	Ulm, Franz, Hoang, Son, Tran, Minh, Ortega, Alberto, Abousleiman, Younane. "GeoMechanics Field Characterization of the Two Prolific U.S. Mid-West Gas Plays with Advanced Wire-Line Logging Tools" SPE Technical Conference and Exhibition . (2009): . Print.	January 2009

	Publication Name	Publication Date
3.82	J. A. Ortega, B. Gathier, F. Ulm "STRENGTH HOMOGENIZATION FOR COHESIVE-FRICTIONAL COMPOSITES: A LINEAR COMPARISON COMPOSITE APPROACH" Multiscale and Multiphysics Processes in Geomechanics [Conference] . (2011): 57-60. Print.	2011
3.83	Ortega, J.A; Gathier, B; Ulm, FJ. " STRENGTH HOMOGENIZATION FOR COHESIVE-FRICTIONAL COMPOSITES: A LINEAR COMPARISON COMPOSITE APPROACH", Edited by: Borja, RI Conference: International Workshop on Multiscale and Multiphysics Processes in Geomechanics Location: Stanford Univ, Stanford, CA Date: JUN 23-25, 2010 Sponsor(s): US Natl Sci Fdn, Geomechan & Geomaterials Program; Stanford Univ, John A Blume Earthquake Engrn Ctr MULTISCALE AND MULTIPHYSICS PROCESSES IN GEOMECHANICS: RESULTS OF THE WORKSHOP ON MULTISCALE AND MULTIPHYSICS PROCESSES IN GEOMECHANICS Book Series: Springer Series in Geomechanics and Geoengineering Pages: 57-60 Published: 2011	2011
3.84	Thomas, JJ, Musso, S, Auzeais, F, James, S, Ulm, FJ, et al. "Fundamental Investigation of the Chemical and Mechanical Properties of High-Temperature-Cured Oilwell Cements" Offshore Technology Conference . (2012): . Print.	January 2012
3.85	F. J. Ulm, R. J. Pellenq "Shrinkage Due to Colloidal Force Interactions" International Conference on Mechanics and Physics of Creep, Shrinkage, and Durability of Concrete and Concrete Structures . (2015): 13-16. Print.	July 2012
3.86	Ulm, Franz, Jennings, Hamlin, Pellenq, Roland. "Front Matter" International Conference on Creep, Shrinkage, and Durability Mechanics (CONCREEP-9) . (2013): i-xvi. Print.	July 2012
3.87	*Abuhaikal, M., Ulm, FJ, Musso, S., Thomas, J. "An Apparatus for Dissecting Volumetric Changes in Hydrating Cement Paste" International Conference on Creep, Shrinkage, and Durability Mechanics (CONCREEP-9) . (2013): 316-323. Print.	July 2012
3.88	Krakowiak, K, Wilson, W, James, S, Ulm, FJ. "In-situ Chemo-Mechanical Characterization of Cementitious Microstructures with Coupled X-Ray Microanalysis and Indentation Technique" International Conference on Creep, Shrinkage, and Durability Mechanics (CONCREEP-9) . (2013): 190-200. Print.	July 2012
3.89	Jennings, H, Ulm, FJ, Bazant, M, Bonnaud, P, Ji, Q., et al. "Water Isotherms, Shrinkage and Creep of Cement Paste: Hypotheses, Models and Experiments" International Conference on Creep, Shrinkage, and Durability Mechanics (CONCREEP-9) . (2013): 134-141. Print.	July 2012
3.90	Bauchy, M., Qomi, MJA, Ulm, FJ, Pellenq, R. "Applying Tools from Glass Science to Study Calcium-Silicate- Hydrates" International Conference on Creep, Shrinkage, and Durability Mechanics (CONCREEP-9) . (2013): 78-85. Print.	July 2012
3.91	Manzano, H., Masoero, E., Del Gado, E., Pellenq, R., Ulm, FJ et al. "Kinetic Simulation of the Logarithmic Creep of Cement" International Conference on Creep, Shrinkage, and Durability Mechanics (CONCREEP-9) . (2013): 166-173. Print.	July 2012
3.92	Vandamme, M., Termkhajornkit, P., Ulm, FJ, Gartner, E., Le Roy, R., et al. "Creep Properties of Cementitious Materials from Indentation Testing: Significance, Influence of Relative Humidity, and Analogy Between C-S-H and Soils" International Conference on Creep, Shrinkage, and Durability Mechanics (CONCREEP-9) . (2013): 48-61. Print.	July 2012
3.93	Brochard, L, Hantal, G, Laubie, H, Pellenq, R, Ulm, FJ. "Fracture Mechanisms in Organic-Rich Shales: Role of Kerogen" Biot Conference on Poromechanics . (2013): 2471-2480. Print.	July 2012
3.94	*Monfared, S.; Ulm, FJ. "Hydraulic Fracturing Modeling: A Microporomechanics Approach" Biot Conference on Poromechanics . (2013): 2490-2499. Print.	July 2012

	Publication Name	Publication Date
3.95	E. Masoero, M. Bauchy, E. Del Gado, H. Manzano, R. M. Pellenq, F. J. Ulm, S. Yip "Kinetic Simulations of Cement Creep: Mechanisms from Shear Deformations of Glasses" International Conference on Mechanics and Physics of Creep, Shrinkage, and Durability of Concrete and Concrete Structures . (2015): 555-564. Print.	July 2012
3.96	M. Bauchy, E. Masoero, F. J. Ulm, R. Pellenq "Creep of Bulk C-S-H: Insights from Molecular Dynamics Simulations" International Conference on Mechanics and Physics of Creep, Shrinkage, and Durability of Concrete and Concrete Structures . (2015): 511-516. Print.	July 2012
3.97	M. J. Qomi, E. Masoero, M. Bauchy, F. J. Ulm, E. Del Gado, R. J. Pellenq "C-S-H across Length Scales: From Nano to Micron" International Conference on Mechanics and Physics of Creep, Shrinkage, and Durability of Concrete and Concrete Structures . (2015): 39-48. Print.	July 2012
3.98	E. Del Gado, K. Ioannidou, E. Masoero, R. J. Pellenq, F. J. Ulm, S. Yip "The Meso-Scale Texture of Cement Hydrate Gels: Out-of-Equilibrium Evolution and Thermodynamic Driving" International Conference on Mechanics and Physics of Creep, Shrinkage, and Durability of Concrete and Concrete Structures . (2015): 34-38. Print.	July 2012
3.99	A. Deirieh, J. A. Ortega, F. Ulm "Nanochemomechanics of Shale: Coupled WDS-Indentation Analysis" Multiphysical Testing of Soils and Shales [Conference] . (2013): 283-288. Print.	2013
3.100	Masoero, E.; Jennings, H. M.; Ulm, F.-J.; et al., "Modelling cement at fundamental scales: From atoms to engineering strength and durability"; Edited by: Bicanic, N; Mang, H; Meschke, G; et al. Conference: Euro-C Conference Location: St Anton am Alberg, AUSTRIA Date: MAR 24-27, 2014 COMPUTATIONAL MODELLING OF CONCRETE STRUCTURES, VOL 1 Pages: 139-148 Published: 2014.	2014
3.101	Bauchy, M.; Qomi, M. J. Abdolhosseini; Pellenq, R. J. -M.; et al., "Is cement a glassy material?"; Edited by: Bicanic, N; Mang, H; Meschke, G; et al. Conference: Euro-C Conference Location: St Anton am Alberg, AUSTRIA Date: MAR 24-27, 2014 COMPUTATIONAL MODELLING OF CONCRETE STRUCTURES, VOL 1 Pages: 169-176 Published: 2014.	2014
3.102	Louhghalam, A.; Akbarian, M.; Ulm, F.-J., "Pavement infrastructures footprint: The impact of pavement properties on vehicle fuel consumption", Edited by: Bicanic, N; Mang, H; Meschke, G; et al. Conference: Euro-C Conference Location: St Anton am Alberg, AUSTRIA Date: MAR 24-27, 2014 COMPUTATIONAL MODELLING OF CONCRETE STRUCTURES, VOL 2 Pages: 1051-1058 Published: 2014.	2014
3.103	Ulm, F.-J.; Abuhaikal, M.; Petersen, T; Pellenq, RMJ, "Poro-chemo-fracture-mechanics ... bottom-up: Application to risk of fracture design of oil and gas cement sheath at early ages (keynote-lecture)", Edited by: Bicanic, N; Mang, H; Meschke, G; et al. Conference: Euro-C Conference Location: St Anton am Alberg, AUSTRIA Date: MAR 24-27, 2014; COMPUTATIONAL MODELLING OF CONCRETE STRUCTURES, VOL 1 Pages: 61-71 Published: 2014.	2014
3.104	M. J. Qomi, M. Bauchy, F. J. Ulm, R. Pellenq "Polymorphism and Its Implications on Structure-Property Correlation in Calcium-Silicate-Hydrates" Nanotechnology in Construction [Conference] . (2015): 99-108. Print.	January 2016
3.105	K. Ioannidou, F. Ulm, P. Levitz, E. Del Gado, R. J. Pellenq "Nano-granular texture of cement hydrates" EPJ Web of Conferences [2100014X] 140. (2017): 15027. Print.	January 2017
3.106	S. Monfared, H. Laubie, F. Radjai, R. Pellenq, F. J. Ulm "Discrete Poroelasticity of Heterogeneous Media" Biot Conference on Poromechanics . (2017): 1363-1370. Print.	July 2017

	Publication Name	Publication Date
3.107	J. W. Mack, M. Akbarian, F. Ulm, A. Louhghalam "Pavement-Vehicle Interaction Research at the MIT Concrete Sustainability Hub" International Conference on Highway Pavements and Airfield Technology . (2017): 160-173. Print.	August 2017
3.108	T Petersen, FJ Ulm, "Phase-field modeling of cement paste: Where particle physics meets continuum mechanics", Computational Modelling of Concrete Structures, 79-86. (Proceedings of the Conference on Computational Modelling of Concrete and Concrete Structures (EURO-C 2018), February 26 - March 1, 2018, Bad Hofgastein, Austria)	March 2018
3.109	A Louhghalam, T Petersen, FJ Ulm, "Translating environmentally-induced eigenstresses to risk of fracture for design of durable concrete pavements", Computational Modelling of Concrete Structures, 265-273: Proceedings of the Conference on Computational Modelling of Concrete and Concrete Structures (EURO-C 2018), February 26-March 1, 2018, Bad Hofgastein, Austria.	March 2018
3.110	F.-J. Ulm, K. Keremidis, R.J.-M. Pellenq, M.J.A. Qomi, "Molecular dynamics-based structural mechanics of buildings' resilience", 11, Computational Modelling of Concrete Structures, [Keynote Lecture]	March 2018
3.111	M Akbarian, FJ Ulm, Xin Xu, Randolph Kirchain, Jeremy Gregory, A Louhghalam, J Mack, "Overview of Pavement Life Cycle Assessment Use Phase Research at the MIT Concrete Sustainability Hub", In: Airfield and Highway Pavements 2019: Innovation and Sustainability in Highway and Airfield Pavement Technology, American Society of Civil Engineers, 193-206	July 2019
3.112	M. Akbarian, F. J. Ulm, X. Xu, R. Kirchain, J. Gregory, A. Louhghalam, J. Mack "Overview of Pavement Life Cycle Assessment Use Phase Research at the MIT Concrete Sustainability Hub" International Airfield and Highway Pavements Conference . (2019): 193-206. Print.	2019

4. Other Major Publications

	Publication Name	Publication Date
4.1	Ulm, F.-J., Coussy, O., "Hydration of concrete: Thermo-chemo-mecanical couplings". In: Des géomatériaux aux ouvrages. expérimentations et modélisations, ed. by C. Petit, G. Pijaudier-Cabot et J.-M. Reynouard, Série GEO, Ed. Hermès, Paris, 111--134, 1995 [in French].	January 1995
4.2	Co-translator from French into English: Coussy O. Mécanique des milieux poreux -- Mechanics of porous continua. J.Wiley & Sons, Chichester, UK, (496 pages), 1995.	January 1995
4.3	Ulm, F.-J., A plastic-damage model: application to structural concrete, Monograph LPC, OA19, Laboratoires des Ponts et Chaussées, Paris, France, 274p, 1996 [in French].	January 1996
4.4	Acker, P., Ulm, F.-J., "Concrete structures subject to thermal and hygral effects", Calcul des ouvrages généraux de construction, Chapter 13, ed. by M. Prat et al., Ed. Hermès, Paris, 1997 [in French].	January 1997
4.5	Clement, J.L., Paschetta, W., Prat, M., Ulm, F.-J., "Modeling of prestressed concrete structures", Calcul des ouvrages généraux de construction, Chapter 9, ed. by M. Prat et al., Ed. Hermès, Paris, 1997 [in French].	January 1997
4.6	Ulm, F.-J., Thermochemomechanical couplings in concrete: a first review of evidence, Monograph LCPC, OA31, Laboratoire Central des Ponts et Chaussées, Paris, France, 105p, 1998 [in French].	January 1998
4.7	Ulm, F.-J., Prat, M., Calgaro, J.-A., Carol, I. (Ed.), Creep and Shrinkage of Concrete, Proc. Int. Workshop ACI-RILEM, held at LCPC, March 1998, Hermès Science Publications, Paris, 200 pages.	March 1998
4.8	Leung, C., Xi, Y., Ulm, F.-J., Pijaudier-Cabot, G., Sture S., (Ed.) Durability Mechanics, Journal of Engineering Mechanics, ASCE, Vol. 126(3), March 2000.	March 2000

	Publication Name	Publication Date
4.9	Ulm, F.-J., Coussy, O., "Environmental chemomechanics of concrete", In: Environmental Geomechanics, ed. by B. A. Schrefler, CISM Courses and Lectures No. 417, Springer WienNewYork, 303– 350, 2001.	January 2001
4.10	Ulm, F.-J., Bažant, Z.P., Wittmann, F.H. (Ed.), Creep, shrinkage and durability mechanics of concrete and other quasi-brittle materials, Proc. Concreep-6, 6th Int. Conf., held at MIT, August 2001, Elsevier Science, 811 pages.	August 2001
4.11	Ulm, F.-J., "Construction: cellular materials", In: Encyclopedia of materials: Science and Technology, 1570 – 1576, Elsevier, 2002.	January 2002
4.12	Xi, Y., Ulm, F.-J., (Ed.) Durability Mechanics of Alkali-Silica Reaction of Concrete, Concrete Science and Engineering, RILEM, Vol. 4(3), March 2002.	March 2002
4.13	Fairbairn, E.M.R., Ulm, F.-J., "A Tribute to Fernando L. L. B. CARNEIRO (1913 – 2001) Engineer and Scientist who invented the Brazilian Test", Materials and Structures, RILEM, Vol. 35(247), 195–196, April 2002.	April 2002
4.14	Dormieux, L., Ulm, F.-J., (Ed.) Micromechanics of Porous Materials, Journal of Engineering Mechanics, ASCE, Vol. 128(8), August 2002.	August 2002
4.15	*Ulm, F.-J., Delafargue, A., Constantinides, G., "Experimental microporomechanics", In: Applied micromechanics of porous materials, ed. by L. Dormieux and F.-J. Ulm, CISM Courses and Lectures No. 480, 207 – 288, Springer WienNewYork, 2005.	January 2005
4.16	Abousleiman, Y; Cheng, A; Ulm, FJ (Eds). Poromechanics 3-biot Centennial 1905-2005, Proceedings of the 3rd Biot Conference on Poromechanics. Taylor & Francis, 2005. Print.	2005
4.17	Viney, C., Katti, K., Ulm, F.-J., Hellmich, C. (Ed), Mechanical properties of bioinspired and biological materials, Materials Research Society, Symposium Proceedings Vol. 844, MRS Warrendale, Pennsylvania, 342 pages, 2005.	January 2005
4.18	Dormieux, L., Ulm, F.-J. (Ed.), Applied micromechanics of porous materials, CISM Courses and Lectures No. 480, Springer WienNewYork, 331 pages, 2005.	January 2005
4.19	Abousleiman, Y.N., Cheng, A.H.-D., Ulm, F.-J. (Ed.), Poromechanics III – Biot Centennial (1905–2005), Proc. 3rd Biot Conference on Poromechanics, held at University of Oklahoma, Norman, May 2005, A.A. Balkema Publishers, London, UK, 828 pages, 2005	January 2005
4.20	Ulm, F.-J., "What's the matter with concrete?", In: Liquid Stone: New Architecture in Concrete, ed. By J.L. Cohen and M. Moeller, 218 – 221, Princeton Architectural Press, New York, 2006.	January 2006
4.21	Homage to Olivier Coussy. EUROPEAN JOURNAL OF ENVIRONMENTAL AND CIVIL ENGINEERING Volume: 14 Issue: 4 Pages: 389-392 Published: 2010	January 2010
4.22	Dr Olivier Coussy, Scientist and Engineer of the Mechanics and Physics of Porous Materials OBITUARY. INTERNATIONAL JOURNAL FOR NUMERICAL AND ANALYTICAL METHODS IN GEOMECHANICS Volume: 34 Issue: 6 Pages: 551-553 Published: APR 25 2010	April 2010
4.23	F. J. Ulm, H.M. Jennings, R.J.M. Pellenq (Eds). Mechanics and Physics of Creep, Shrinkage, and Durability of Concrete. Amer Society of Civil Engineers, 2013. Print.	2013
4.24	Ulm, F.-J., Jennings, H.M, Pellenq, R (Ed.), Mechanics and physics of creep, shrinkage and durability of concrete, Proc. Concreep-9, 9th Int. Conf., held at MIT, September 2013, American Society of Civil Engineers, Reston VA, 498 pages.	September 2013

5. Internal Memoranda and Progress Reports

None

6. Invited Lectures

	Publication Name	Publication Date
6.1	“Modeling of High Performance Cementitious Composites”. National Institute of Standards and Technology, Gaithersburg, Maryland.	January 1999
6.2	“Chemomechanics of ASR-Expansion in Concrete Structures”, Technical University of Vienna, Austria, Institute for Strength of Materials, August 30, 1999; also given at MIT, Engineering and Environmental Mechanics Seminar, October 1, 1999.	August 1999
6.3	“The Chunnel-Fire: Thermal Spalling due to Chemoplastic Softening”, UC Berkeley, Ca., Dpt. of Civil and Environmental Engineering, October 11, 1999; also given at MIT, Engineering and Environmental Mechanics Seminar, April 1999.	October 1999
6.4	“Physical Infrastructure in the Information Age: Monitoring-by-Modeling”, MIT-NUS workshop, Singapore; also at: CEE-Faculty Meeting, MIT, February 2000; CEE Visiting Committee, MIT, November 2000.	January 2000
6.5	“Chemomechanics of expansive reactions in concrete structures”; Technical University of Bochum (Germany), also at: Technical University of Delft (The Netherlands), March 2000; 14th ASCE Engineering Mechanics Conference, Austin, TX, May 2000; Technical University of Berlin (Germany), July 2000; United Engineering Foundation Conference, Quebec (Canada), August 2000.	March 2000
6.6	“Micro-Mechanics of Expansive Reactions: The Case of ASR-Expansion”, International Congress of Theoretical and Applied Mechanics (ICTAM 2000); Chicago, Ill.	August 2000
6.7	“What Osteoporosis and Nuclear Waste Disposal have in Common”; American Nuclear Society at MIT; also at: Lafarge Concrete Research Center, France, December 2000; ETH Zurich, Switzerland, February 2001; Physical mathematics seminar, Math Department MIT, April 2001; Keynote Lecture FramCos-4, 4th Int. Conf. On Fracture Mech. of Concrete and Concrete Structures, Cachan, France, May 2001; Technology Day Panel “Materials and Machines: Smaller, Stronger, Smarter”, Alumni/ae Assoc. MIT, June 2001; CEE Visiting Committee, MIT, November 2002; Sigma-Xi Lecture, MIT, April 2003; also at : Vingt-huitième« Journée de l’OFTA » (L’Observatoire Français des Techniques Avancées), Vieillessement et durabilité des matériaux, Paris, France, June 2003; Princeton University, NJ, March 2004; Columbia University, New York City, April 2004; University of Minnesota, April-May 2004.	October 2000
6.8	“Residual Strength Domain of Calcium Leached Cement Based Materials”, UNICORN-Workshop, Paris, France.	February 2001
6.9	“Synergistic Strengthening of Cement-Based Materials by Rigid Inclusion”, Ecole Polytechnique Federal de Lausanne; Journées des Matériaux, Switzerland.	October 2001
6.10	“Bio-Chemo-Mechanics of Bone Remodeling and Fracture”; Seminaire d’Ile de France: ENS de Cachan / Ecole Polytechnique; also at: IAP – In Celebration of Modeling and Simulation, MIT, January 2002; Continuum Mechanics Seminar Series, Mechanical Engineering Dpt. MIT, February 2002; Bioengineering Seminar, Georgia Institute of Technology, April 2002; Mechanical Engineering Seminar, American University of Beirut, Libanon, May 2002; Keynote Lecture 5th World Congress on Computational Mechanics, Vienna, Austria, July 2002.	December 2001
6.11	“Chemomechanics of early-age concrete structures”; Invited Lecture, Gordon Conference, Ventura CA; also at: Delft University of Technology, Priority Program Materials Science, Research School of Structural Engineering on Advances in cement-based materials (PhD-advanced course), January 2003.	March 2002

	Publication Name	Publication Date
6.12	"I-City: Physical Infrastructure in the Information Age: Monitoring-by-Modeling", 2nd Annual Technology and the Workplace Conference, AIA Michigan.	April 2002
6.13	"If strength was the answer, what was the question?", MIT, Engineering & Environmental Mechanics Seminar; also at: Delft University of Technology, Priority Program Materials Science, Research School of Structural Engineering on Advances in cement-based materials (PhD-advanced course), January 2003.	May 2002
6.14	"Chemomechanics of concrete – a review of evidence"; 5th World Congress on Computational Mechanics, Vienna, Austria, July 2002; Robert L'Hermite Award Lecture, RILEM Annual Week Madrid, September 2002; Seminar Ile de France, ENPC, Universite de Marne-La-Vallee, December 2002.	July 2002
6.15	"Chemomechanics in porous media"; Bi-Annual Meeting of RockMechanics Consortium, University of Oklahoma, October 2002; also at: Geotechnics Seminar, Department of Engineering, University of Cambridge, November 2002; Delft University of Technology, Priority Program Materials Science, Research School of Structural Engineering on Advances in cement-based materials (PhD-advanced course), January 2003.	October 2002
6.16	"[Bio-]Chemomechanics at Finer Scales – a Review" Keynote Lecture Intern. Conf. EURO-C: Computational modeling of concrete structures, Austria.	March 2003
6.17	"Model-based optimization of UHPC highway bridge girders", Seminaire Association Francaise de Genie Civil, Federation Nationale des Travaux Public (French association of Civil Engineering, National federation of public work), Paris, France; also at: MIT-University of Kentucky UHPC Design Workshop, Lexington, KY, October 2003.	March 2003
6.18	Towards the poromechanical blueprint of shale materials – A GeoGenomic approach", Bi-Annual Meeting of RockMechanics Consortium at Houston (TX), University of Oklahoma; also at: Geotechnics Seminar, Department of Engineering, University of Cambridge, UK, July 2003.	June 2003
6.19	"NanoIndentation & NanoProperties of C-S-H ('colloidal') systems: What do we know and what not?", Symposium ACI Convention, Boston.	September 2003
6.20	"GeoGenome - On the use of nanoscience, nanoengineering and nanotechnology for the next generation of oil and gas drilling engineering", OU-Petroleum Industry Consortium Meeting, Houston, TX; also at: MIT-Mechanical Engineering Seminar Series, September 2004; CEE Visiting Committee, MIT, November 2004; ARAMCO-MIT-OU meeting, Dhahran, Saudi Arabia, May 2005; Invited speaker at SPE 2005 Technical Symposium, Dhahran, Saudi Arabia; also at: MIT-OU GeoGenome Industry Consortium, Oklahoma University, Norman, May 2005.	June 2004
6.21	"Emerging Concrete Technology: From the Laboratory to the Building Site", Concrete Future Symposium, School of Architecture, Princeton University; also as: "Why concrete goes Nano?", Béton et Architecture – Architecture and Concrete, Centenaire de l'American Concrete Institute, ACI Chapter Paris, December 2004.	October 2004

Publication Name	Publication Date
6.22 "What's the matter with concrete?", CMMC Workshop - Current Challenges in the Integration of Computational Modelling and Micro/Nano Characterisation of Cementitious Materials, Glasgow, Scotland, 10-11th January 2005; Continuum Education Seminar for Architects, Payette, Boston, January 16, 2007; Concrete Reborn Roundtable, School of Architecture, Columbia University, New York, January 22, 2007; Pollution Prevention through Nanotechnology Conference, Environmental Protection Agency, Arlington, VA, September 25, 2007; Innovation Conference, Bangkok, Thailand, October 1, 2007; Family Weekend at MIT, October 12, 2007; INSA de Toulouse, Mechanics and materials seminar, Toulouse, France, October 22, 2007; 2nd International symposium of Ultra-High performance Concrete, Kassel, Germany, March 2008; 3rd Palestinian Physics Conference, Al-Quds University, Jerusalem, March 2008; 1st Palestinian Civil Engineering Conference, Birzeit University, Birzeit, West Banks, May 2008; Shaw Lecture, North Carolina State University, February 5, 2009; Keynote Lecture, Convegno Nazionale IGF XX, Torino 24-26 giugno 2009; "What's the Matter with Concrete?" – Honorary Membership of the Italian Fracture Association;	January 2005
6.23 "The nanogranular nature of C-S-H", Northwestern University, Mid-America Lecture, February 2006.	February 2006
6.24 "Les betons ou le vertige de l'infiniment petit", ENPC, Ecole Polytechnique Chair Lafarge, France, March 2006; also at: Musee des Arts et Metier, Paris, France, September 2006.	March 2006
6.25 "News on the Concrete Front", Palestinian Concrete Society, Ramallah, West Bank, July 2006.	July 2006
6.26 "Is C-S-H intrinsically unstable?" – Workshop in honor of Zdenek P. Bazant's 70th birthday, Prague, Czech Republic, June 24, 2007.	June 2007
6.27 "How smart are cements in the oilfield?", Schlumberger R&D workshop on Smart Materials, Cambridge, MA, October 9, 2007; also at: Arctic Cementing Workshop, Schlumberger, Cambridge 02/11/2010	October 2007
6.28 "From Atoms to Structures: Nanotechnology & The Holy Haram Extension Project", Faculty Achievement Lecture, Birzeit University, Birzeit, Palestine July 22 2009; also at: 5. Keynote Lecture, 11th Arab Structural Engineering Conference, Dahrhan, Saudi Arabia, October 26, 2009.	July 2009
6.29 "What do Human Bones and Concrete Have in Common?", Converge Dinner Lecture, MIT, October 2, 2009.	October 2009
6.30 "Breaking the Wall of Concrete Pollution", Falling Walls Conference, Berlin, Germany, November 9, 2009;	November 2009
6.31 "Materials Challenges for High-Rise Buildings in Palestine", Civil Engineering Conference, Birzeit University, Birzeit, Palestine, January 26, 2010.	January 2010
6.32 "Quand un ingénieur parle « Béton » à un physicien...", Café des Sciences, French Consulate, Boston 02/16/2010.	February 2010
6.33 "The Concrete Sustainability Hub @ MIT", Meet the Hub, Executive Industry Board, MIT, 02/19/2010.	February 2010

	Publication Name	Publication Date
6.34	C-Crete: From Atoms to Concrete Structures: When a Civil Engineer talks “Concrete” to a (Statistical) Physicist”, Euro-C, Keynote Lecture, Austria, 03/18/2010; also at: keynote lecture Concrete Sustainability Conference, Tempe, AZ, 04/15/2010; WR Grace, Cambridge, 05/14/2010; MIT Real Estate Workshop, DC, 06/13/2010; BASF, Germany, 07/19/2010; Lafarge Cement Science Workshop, Lyon, France, 07/22/2010; EMI Conference, Keynote Lecture, USC, LA, Ca, 08/09/2010; CSHub Industry Day, 08/31/2010; NRMDC Annual Meeting, 09/20/2010; Sabanci Energy Retreat, Istanbul, Turkey, 09/28/2010; Biot lecture, Columbia University, 10/05/2010; Visiting Committee, CEE-MIT, 10/26/2010; MIT-Total Retreat, MIT, Cambridge, 11/08/2010; Cimpor Industry Meeting, Lisbon, Portugal, 11/11/2010; ILP Conference MIT, 11/17/2010; CEMEX CEO Briefing, 11/29/2010; UHPC Workshop—Columbia University January 11-12, 2011; Lafarge Scientific Panel, Paris, France, June 29, 2011.	March 2010
6.35	“Scratch Model for Fracture Toughness: Macro- and Nanoscratching”, Geomechanics Workshop, Stanford, 06/23/2010; Schlumberger, Gas Shale Meeting, 12/14/2010; also at: “We talk about Strength, but don’t we mean Fracture Resistance?” NanoCem – CSHub Workshop; MIT March 7-8, 2011; “Experimental assessment of Fracture Toughness by Scratching”; X-Cem Review meeting March 14-15, 2011, MIT.	June 2010
6.36	“X-Shale: Science & Engineering of Gas Shale: Bottom-Up – A shift of paradigm” MIT – Schlumberger – Shell meeting, MIT March 11, 2011; X-Shale Project Kick-off meeting MIT; Sept. 30 and Oct 12, 2011. Kick-off meeting November 16, 2011; Earth Resource Laboratory (ERL/EAPS): Talk on What’s the matter with gas shale. ERL 30th Anniversary meeting, May 30, 2012; MIT Energy Initiative (MITEI): Presentation to External Advisory Board on: X-Shale: The Science and Engineering of Gas Shale, October 25, 2012; MITEI visit to Saudi-Aramco, Dharhan, May 20-21, 2012; Kuwait Petroleum Corporation, MIT/ILP, March 8, 2012; Palestinian Conference on Modern Trends in Mathematics and Physics-III, Palestine Polytechnic University, Hebron, Palestine, July 16, 2012; SHELL–MITEI Workshop, Shell Exploration & Production International Centre, Rijswijk, The Netherlands. Jan. 31, 2013; SPE Meeting Yale University, New Haven, March 5, 2013; MITEI External Advisory Board, October 24, 2013.	March 2011
6.37	“NanoGranular Nature of C-S-H – I’ll believe it when I see it”; NanoCem – CSHub Workshop; MIT March 7-8, 2011; also at: MIT-CNRS GdRI meeting, MIT, March 25-26, 2011; Mechanics & Physics of Porous Solids 2011. A Tribute to Olivier Coussy; ENPC, France, April 19. 2011.	March 2011
6.38	“Bottom–Up: From Atoms to Microtexture. Experiments & Simulations”; BASF Workshop: Crystallization Control for the Construction Industry 03/02/2011, Trostberg, Germany; also at: MIT-France Energy Forum, Paris, France, June 29, 2011.	March 2011
6.39	“Speed Dating with a Future UMI”; Presentation to Mme Valerie Pecresse, French Secretary of Research; April 12, 2011.	April 2011
6.40	“How do you scrape cold butter – Multiscale assessment of fracture properties” – Harvard Applied Mechanics Seminar, September 14, 2011; also at: ETH Zurich, Mechanics & Materials Seminar, September 28, 2011; TAM Seminar Northwestern University, Evanston, Ill., January 26, 2012; Centre Européen de Calcul Atomique et Moléculaire (CECAM), GdRI/CECAM Workshop, ETH Zurich, Switzerland, February 8-10, 2012;	September 2011
6.41	“A Mechanistic Approach for Pavement Vehicle Interaction in LCA”; Webinar, PCA/NRMCA; September 8, 2011; also at: Fall NCC Meeting (FHWA, DOT), September 13, 2011, South Dakota; 48th ACPA American Concrete Pavement Association) Annual Meeting: Evolution Through Innovation – 11/30-12/02/2011, Indian Wells/Ca; Keynote lecture. International Concrete Sustainability Conference, Seattle, May 8, 2012; Keynote lecture. 2012 IEEE-IAS/PCA Cement Industry Technical Conference, San Antonio, TX, May 16, 2012; 2012 National Pavement Preservation Conference, Nashville, TN, August 29, 2012.	September 2011

	Publication Name	Publication Date
6.42	"On clinker substitution, dissolution and grinding". Sustainability Symposium. 2012 IEEE-IAS/PCA Cement Industry Technical Conference, San Antonio, TX, May 16, 2012.	May 2012
6.43	"Mechanics of multi-scale porous materials, from elasticity to fracture: modelling and experiment." Winter School on Multi-Scale Porous Materials for Energy and Environment, LabEx ICoME2/AM*IDEX, M2UN-GdR-i/CNRS and Polytech Marseille/AMU, Marseille, France, January 28-30, 2013; also: January 2014, January 2015.	January 2013
6.44	"What's the mileage of VDOT's Pavement system?" Virginia DOT, Charlottesville /VA, February 12, 2013; also at: Keynote Address. Virginia Ready Mix Concrete Association, Greenbrier VA, May 21, 2013.	February 2013
6.45	"What's the mileage of CALTRANS' Pavement System?" Caltrans – CARB – Legislator meeting, Sacramento/Ca, March 19-20, 2013.	March 2013
6.46	The future of Concrete – carbon management strategies. Keynote lecture. Concrete sustainability conference, San Francisco, Ca., May 7, 2013; also at: InterCement Workshop, Sao Paulo, Brazil, April 3, 2013; PCA Board meeting, Chicago, April 30, 2013.	April 2013
6.47	"Carbon Management = Infrastructure Performance." Caltrans – CARB – Legislator meeting, Sacramento/Ca, June 24-25, 2013; also at: MnDOT (Minnesota DOT), July 15, 2013; FIU-MIT Sustainability Summit, Miami/FL, October 29, 2013; Presentation to Sustainable Pavements Technical Working Group (SPTWG), Federal Highway Administration, Baton Rouge/LS, November 13, 2013.	June 2013
6.48	"The unconventional Science & Engineering of Gas Shale", - National Workshop CNRS/France: Gaz et Huiles de Schistes et leur Exploitation: Concepts Fondamentaux et Verrous Technologiques; January 14, 2014; Paris, France.	January 2014
6.49	"Cementing in the Oil- and Gas Field...Bottom-Up"; Keynote Lecture EURO-C: Computational Modeling of Concrete and Concrete Structures; March 24-27, 2014; St. Anton am Arlberg, Austria; also at: University of Houston, Department of Civil & Environmental Engineering, December 1, 2014; Houston Texas.	March 2014
6.50	"Carbon Management Through Pavement Performance in Caltrans Network." California State Transportation Agency, Sacramento, Ca., January 7, 2015; also at: CARB, Sacramento, CA, January 8, 2015.	January 2015
6.51	"CSHub@MIT: What is in the making?"; IEEE-IAS/PCA CEMENT CONFERENCE April 29, 2015 Toronto/Ca.	April 2015
6.52	"From materials science to decision making: A bottom-up approach to construction materials", UBS meeting, MIT-ILP, 06/18/2015.	June 2015
6.53	"QUANTITATIVE SUSTAINABILITY @ CITY SCALE", NYU – MIT URBAN THERMODYNAMICS WORKSHOP, New York, August 31, 2015.	August 2015
6.54	"SHRINKAGE DUE TO COLLOIDAL FORCE INTERACTIONS", Keynote Lecture, Concreep-10, Technical University Vienna, Austria, September 21, 2015.	September 2015
6.55	"DIRTY PHYSICS OF MESSY MATERIAL SYSTEMS", Retirement Event for Prof. Eduardo Kausel, MIT, October 26, 2015.	October 2015
6.56	"The unconventional Science and Engineering of Shale Gas / Gas Shale: Shifts of Paradigms", TAM seminar Northwestern University, Evanston, Ill., October 28, 2015; also at: Princeton University, December 2, 2015.	October 2015

	Publication Name	Publication Date
6.57	"URBAN PHYSICS", BASF 150Yr Symposium "Urban Living", Shanghai, China, 11/11/2015; also at: MIT-meeting with Saint Gobain 11/30/2015.	November 2015
6.58	"The unconventional science and engineering of gas shale/shale gas", MechE Seminar, MIT, February 9, 2016	February 2016
6.59	"URBAN PHYSICS", Urban Physics Workshop, MIT, March 1, 2016	March 2016
6.60	"Le Chatelier's Conjecture -or- Measurement of Colloidal Stresses", Georgetown SoftMatter Physics Seminar, Georgetown University, April 28, 2016; also at IST Lisbon, Portugal, May 16, 2016	April 2016
6.61	"X-Shale: The unconventional science and engineering of gas shale/shale gas", MITEI meeting with VP R&D Shell IRD LT, May 11, 2016, also at - VP-meeting Schlumberger, June 1, 2016 (MIT); - VP-meeting TOTAL, Stanford, October 4, 2016	May 2016
6.62	"CSHub@MIT: Concrete's Innovation Potential", IEEE-IAS/PCA Cement Industry Technical Conference, Dallas, TX. May 18, 2016	May 2016
6.63	"CNRS-MIT UMI@MIT: Science-Enabled Engineering through Multiscale Materials Science for Energy and Environment", Keynote lecture, MIT-CNRS ceremony of UMI renewal, organized by MITEI and MIT-France, September 9, 2016	September 2016
6.64	"Quantitative sustainability assessment of pavements", North Carolina Department of Transportation (NCDOT), Raleigh, Sep 15, 2016	September 2016
6.65	MINDLIN LECTURE: "Urban Physics: Is New York a Liquid or a Crystal?" - Columbia University, NY, November 1, 2016; also at: REAL ESTATE DEVELOPMENT Summit, BOSTON PROPERTIES, Boston (MA), Nov. 4. 2016.	November 2016
6.66	KAPLAN LECTURE: "Urban Physics: Is Vienna a crystal or amorph?", Austrian Academy of Science, Vienna, Austria, December 14, 2016; also at Camillo Sitte Lehranstalt (Technical High School), Vienna, Austria Dec 15, 2016.	December 2016
6.67	SOFTMATTER PHYSICS SEMINAR: Urban Physics or Is DC a Liquid or a Solid?, Georgetown University.	April 2017
6.68	ZDENEK BAZANT SYMPOSIUM: Le Chatelier's Conjecture or Measurement of Colloidal Stresses in Chemically Reactive Materials, EMI Conference San Diego	June 2017
6.69	BIOT-COUSSY THEORY: From continuum poromechanics to statistical physics of porous materials, 6th Biot Conference on Poromechanics- A Tribute to Olivier Coussy, ENPC, Marne-La-Vallee, France.	July 2017
6.70	NewMech 2017: Urban Physics: Is Boston a Liquid or a Solid? New England Mechanics Workshop	October 2017
6.71	CALTECH Mechanical and Civil Engineering Seminar: Urban Physics: Is LA a liquid or a solid?	November 2017
6.72	Urban Physics: Is Sao Paolo a Liquid or a Solid? USTDA Brazil, MIT	February 2018
6.73	Griffith's Postulate - Or- Tinkering with Rethinking Fracture Mechanics, Z.P. Bazant 80th Birthday Symposium, Bad Hofgastein, Austria	February 2018
6.74	Urban Physics & Engineering: IS NY a Liquid or a Crystal? Keynote Lecture EURO-C (Computational Modeling of Concrete and Concrete Structures; Bad Hofgastein, Austria)	February 2018
6.75	Building & Urban Resilience, Concrete Sustainability Hub Bi-Annual Meeting, MIT	April 2018

	Publication Name	Publication Date
6.76	UMI@MIT: What is in the Making? CNRS/MIT Review Meeting, MITEI	April 2018
6.77	Urban Physics, Engineering & Resience, CSHub Public Webinar	May 2018
6.78	Preparing the Future of Concrete, IEEE/PCA Annual Meeting,	May 2018
6.79	What would it take? Fracture Design of Cement Liners. MIT - ARAMCO Workshop, MIT	May 2018
6.80	Urban Physics, Sustainability & Resilience: Is Al-Quds a Liquid or a Crystal? Keynote Lecture: Palestine Conference on Modern Trends in Mathematics and Physics, Tulkarem (Palestine Technical University)	August 2018
6.81	Urban Physics, Sustainability & Resilience: Is Beirut a Liquid or a Crystal? American University of Beirut	October 2018
6.82	Resilience - Resilience - Resilience, Concrete Sustainability Hub, Bi-Annual Meeting, MIT	October 2018

Student Thesis Summary

Degree	Total	Completed	In Progress
PhD as Supervisor	31	28	3
PhD as Reader	26	26	0
Master's	43	41	2
MEng	2	2	0
Graduate	5	0	5

SUPERVISED THESES

PhD as Supervisor Theses:

- Guenot-Delahaie, Isabelle, "Contribution to the physical analysis and the modeling of basic creep of concrete (co-supervised with P. Acker, LCPC).," October 1996 (ENPC Paris)
- Sercombe, Jerome, "Modeling the shock behavior of concrete. Application to the analysis of high integrity containers (co-supervised with F. Toutlemonde, LCPC)," December 1997 (ENPC Paris)
- Desir, Jean-Marie, "Material modeling and finite element analysis of the steel-concrete interface (co-supervised with E.M.R. Fairbairn, COPPE/UFRJ)," September 1998 (COPPE/Federal University of Rio de Janeiro)
- Aouameur, Amel, "Multilayer shell elements for internal variable material laws (co-supervised with P. Humbert, LCPC)," November 1998 (ENPC Paris)
- Hellmich, Christian, "Multisurface chemoplasticity for shotcrete at early ages in the context of the NATM (co-supervised with Prof. H.A. Mang, TU Vienna)," August 1999 (Technical University of Vienna, Austria)
- Chuang, Eugene Y., "Ductility Enhancement of high performance cementitious composites and structures," July 2002 (Dpt. Civil and Environmental Engineering, MIT)
- Heukamp, Franz H., "Chemomechanics of calcium leaching of cement-based materials at different scales: The role of CH-dissolution and C-S-H degradation on strength and durability performance of materials and structures," September 2002 (Dpt. Civil and Environmental Engineering, MIT)
- Ben Romdhane, Ramzi, "The steel-concrete interface: physical mechanism and modeling (co-supervised with P. Rossi, LCPC, France)," February 2004 (ENPC Paris)
- Constantinidis, Georgios, "Invariant mechanical properties of Calcium-Silicate-Hydrates (C-S-H) in cement-based materials: instrumented nanoindentation and microporomechanical modeling," September 2005 (Dpt. of Civil and Environmental Engineering, MIT)
- Vandamme, Matthieu, "The nanogranular origin of concrete creep: a nanoindentation investigation of microstructure and fundamental properties of calcium-silicate-hydrates," June 2008 (Dpt. of Civil and Environmental Engineering, MIT)
- Bobko, Christopher P., "Assessing the mechanical microstructure of shale by nanoindentation: the link between mineral composition and mechanical properties," September 2008 (Dpt. Of Civil and Environmental Engineering, MIT)
- Ortega, J. Alberto, "Microporomechanical modeling of shale," December 2009 (Dpt. Of Civil and Environmental Engineering, MIT)
- Shasavari, Rouzbeh, "Molecular structure of C-S-H," December 2010 (Dpt. Of Civil and Environmental Engineering, MIT)
- Konrad Krakowiak, "The fundamental building block of bricks – a nanochemomechanical investigation," March 2011 (Dpt. of Civil & Environmental Engineering, Minho University, Portugal)
- Zenzile Brooks, "Fracture process zone: microstructure and nanomechanics in quasi-brittle materials," May 2013 (Dpt. Of Civil and Environmental Engineering, MIT)
- Ange-Therese Akono, "Assessment of fracture properties and rate effects on fracture of materials by micro scratching: application to gas shale," September 2013 (Dpt. Of Civil and Environmental Engineering, MIT)
- Mohammad Javad Abdulhossein Qomi, "From atoms to cities : A bottom-up analysis of infrastructure materials and systems," December 2014 (Dpt. Of Civil and Environmental Engineering, MIT)
- Mehdi Akbarian, "Quantitative sustainability assessment of pavement-vehicle interaction : from bench-top experiments to integrated road network analysis," 2015 (Dpt. of Civil & Environmental Engineering, MIT)
- Muhannad Abuhaikal, "Expansion and shrinkage of early-age cementitious materials under saturated conditions: the role of colloidal eigenstresses," June 2016 (Dpt. Of Civil and Environmental Engineering, MIT)
- Mirna Slim, "Creep properties of source rocks using indentation: the role of organic matter on texture and creep rates," June 2016 (Dpt. of Earth, Atmosphere and Planetary Sciences, MIT)
- Hadrien Laubie, "Elastic properties and failure behavior of disordered porous solids: a potential-of-mean-force-based

- lattice element approach," 2017 (Dpt. of Civil & Environmental Engineering, MIT)
- Xu, Xin, "Towards a Robust Life-Cycle Assessment Tool for Sustainable Pavement Designs: Quantifying Context-specific Impacts of Pavement Albedo," 2018 (Dpt. of Civil & Environmental Engineering, MIT)
- Hester Josh, "Flexibility for improved design: A probabilistic approach for the quasi-optimization of building life cycle impacts and costs," 2018 (Civil & Environmental Engineering, MIT)
- Thomas Petersen, "Continuum Modeling of Reactive Colloids: Transformation of Cement Paste from Sol to Cohesive Gel," January 2019 (Department of Civil & Environmental Engineering, MIT)
- Siavash Monfared, "Mesoscale Saturated & Unsaturated Poroelasticity of Highly Heterogeneous Porous Solids – Discrete Solid & Fluid Descriptions," March 2019 (Dpt. of Civil & Environmental Engineering, MIT)
- Jacob Roxon, "Role of City Texture in identifying Drag Coefficients of Buildings to prevent Hurricane Damage," January 2020 (Dpt. of Civil & Environmental Engineering, MIT)
- Al-Mulla, Talal, "Fracture Mechanics in the Semigrand Canonical Ensemble," April 2021 (Dpt. of Civil & Environmental Engineering, Massachusetts Institute of Technology (MIT))
- Guo, Fengdi, "Improving pavement networks through performance-based planning with optimal treatment strategies and management policies," June 2021 (Civil and Environmental Eng, MIT)
- Manav, Ipek Bensus, "(ongoing)," 2022 (Department of Civil & Environmental Engineering, Massachusetts Institute of Technology (MIT))
- Konstantinos Kerimidis, "(ongoing)," 2022 (Dpt. of Civil & Environmental Engineering, MIT)
- Botshekan, Meshkat, "(ongoing)," 2023 (Department of Civil & Environmental Engineering, MIT)

PhD as Reader Theses:

- Hearing, Brian, "Delamination in reinforced concrete retrofitted with fiber reinforced plastics (Supervisor: Prof. O. Buyukozturk, MIT).," January 2000 (Dpt. of Civil and Environmental Engineering, MIT)
- Van Zijl, Gideon, "Computational modelling of masonry creep & shrinkage (Supervisor: Profs. R. de Borst and J. Rots).," March 2000 (Technical University of Delft, The Netherlands)
- Bernard, Olivier, "Long-term behavior of structural components made of concrete of different ages (Supervisor: Prof. E. Bruhwiler).," October 2000 (Ecole Federal Polytechnique de Lausanne)
- Witasse, Richard, "Long-term behavior of cooling towers (Supervisor: Prof. J.M. Reynourd).," December 2000 (Institute National de Sciences Appliquees, France)
- Chen, Weigang, "Optimization of crashworthiness of foam filled aluminium profiles (Supervisor: Prof. T. Wierzbicki, MIT).," January 2001 (Dpt. Of Ocean Engineering, MIT)
- Le Bellego, Caroline, "Chemomechanical couplings in concrete structures subjected to water: experimental study and numerical simulations (Supervisor: Prof. G. Pijaudier-Cabot).," February 2001 (Ecole Normale Superieure de Cachan, France)
- Lemarchand, Eric, "Contribution of micromechanics to the study of transport phenomena and poromechanical coupling in geomaterials: application to swelling phenomena (Supervisor: Prof. L. Dormieux).," March 2001 (Ecole Nationale des Ponts et Chaussees, Paris)
- Shi, Yijun, "Analysis of optimum lamb wave tuning (Supervisor: Prof. S.-C. Wooh, MIT).," September 2001 (Dpt. of Civil and Environmental Engineering, MIT)
- Li, Kefei, "Chemomechanics modeling of the behavior of concrete affected by the alkali-silica reaction and model-based assessment of degraded structures (Supervisor: Prof. O. Coussy).," September 2002 (Ecole Nationale des Ponts et Chaussees, Paris)
- Poyet, Stephane, "Investigation of concrete structure degradation due to the alkali-silica reaction : multiscale experimental and computational approach to the degradation in a variable hydro-chemomechanical environment (Supervisor: Prof. J.-M. Torrenti).," December 2002 (Universite de Marne-La-Vallee, France)
- Benboudjema, Farid, "The triaxial creep and drying creep behavior of cement-based materials and structures (Supervisor: Prof. J.-M. Torrenti).," December 2002 (Universite de Marne-La-Vallee, France)
- Veroy, Karen P, "Reduced-basis methods applied to problems in elasticity: Analysis and applications (Supervisor: Prof. A.T. Patera, MIT).," April 2003 (Dpt. of Civil and Environmental Engineering, MIT)
- Wang, Ji-Yong, "NDE-assessment of cracks and flaws in cementitious materials (Supervisor: Prof. S.C. Wooh, MIT).," August 2003 (Dpt. of Civil and Environmental Engineering, MIT)
- Lee, Phil-Seung, "On triangular finite elements for general shell structures (Supervisor: Prof. K.-J. Bathe, MIT).," September 2003 (Dpt. of Civil and Environmental Engineering, MIT)
- Hong, Jung-Wuk, "Developments in the method of finite spheres: efficiency and coupling to the traditional finite element method (Supervisor: Prof. K.-J. Bathe, MIT).," September 2003 (Dpt. of Civil and Environmental Engineering, MIT)
- Gunes, Oguz, "Retrofitting of steel and concrete structures under cyclic and environmental loading (Supervisor: Prof. O.

- Buyukozturk), " July 2004 (Dpt. of Civil and Environmental Engineering, MIT)
- Kim, Yun Sung, "Particulate transport through porous media. Application to grouting (Supervisor: Prof. A.J. Whittle, MIT).," September 2004 (Dpt. Of Civil and Environmental Engineering, MIT)
- Xiaoqing, Teng, "High Velocity Impact Fracture (Supervisor: Prof. T. Wierzbicki, MIT).," December 2004 (Dpt. of Ocean Engineering, MIT)
- Barthelemy, Jean-Francois, "Micromechanical approach to rupture and cracking in geomaterials (Supervisor: Prof. L. Dormieux).," April 2005 (Ecole Nationale des Ponts et Chaussees, Paris)
- Banijamali, Bahareh, "Development of the flow-condition-based interpolation finite element procedure for incompressible fluid flows (Supervisor: Prof. K.-J. Bathe, MIT).," August 2005 (Dpt. of Civil and Environmental Engineering, MIT)
- Sen, Sugata, "Reduced Basis Approximation and A Posteriori Error Estimation for Many-Parameter Problems (Supervisor: Prof. A.T. Patera, MIT).," August 2007 (Dpt. of Civil and Environmental Engineering, MIT)
- Buffo-Lacarriere, Laurie, "Prevision et evaluation de la fissuration precoce des ouvrages en beton (Supervisor : Prof. Gilles Escadeillas, Insa de Toulouse, France).," October 2007 (Doctorat de l'INSA de Toulouse, France)
- Ghabezloo, Siavash, "Comportement thermo-poro-mecanique d'un ciment petrolier (Supervisor : Prof. Jean Sulem, ENPC, France).," October 2008 (Doctorat de l'Ecole des ponts, France)
- Loeffel, Kaspar, "A chemo-thermo-mechanically coupled theory for directional swelling due to a chemical reaction (Supervisor : Prof. Lallit Anand, MIT).," May 2013 (Dpt. Mech. Engineering, MIT)
- Swei, Omar, "Material Diversification in Pavement Management: A Technique to Proactively Deal with an Uncertain Future.," August 2016 (Dpt. of Civil & Environmental Engineering, MIT)
- Rami Abi Akl, "Kinetics of surface growth and coupled diffusion in a continuum framework," 2018 (Mechanical Engineering, MIT)

Master's Theses:

- Latreche, Aicha, "Dynamic and equivalent static analysis of civil engineering structures," July 1992 (MSc (D.E.A.), ENS de Cachan)
- Guggenberger, Johann M., "Non-linear analysis of prestressed concrete structures," November 1992 (MSc (Diplomarbeit), ENPC Paris/TU Munich (Germany))
- Magnat, Vincent, "Multifiber beam modeling of steel-concrete slip," July 1993 (MSc. Thesis, (Travail de fin d'etudes) at ENPC Paris)
- Flidner, Merit, "Multifiber beam modeling of shear forces in RC concrete beams (co-supervised with P. Casanova, LCPC).," November 1993 (MSc (Diplomarbeit), ENPC Paris/TU Munich (Germany))
- Piermattei, Enrico, "Use of a gradient damage model for dynamic analysis of concrete structures (co-supervised with F. Toutlemonde, LCPC).," September 1994 (ENPC Paris-Univ. of Rome II (Italy))
- Marchetti, Paolo, "Monitoring concrete cracking: the case of precast RC- and SFRC-tunnel liners (co-supervised with P. Aristaghes, Bouygues TP).," September 1994 (ENPC Paris-Univ. of Rome II (Italy))
- Ben Romdhane, Ramzi, "Modeling of inertia and viscous hardening effects on concrete cracking under high rate dynamics using a probabilistic discrete crack approach (co-supervised with F. Toutlemonde, LCPC).," July 1995 (D.E.A., ENPC Paris-Univ. Paris VI)
- Hallil, Sami, "Constitutive modeling and numerical aspects of drying effects on concrete cracking: the HEXO-PROB coupling," July 1995 (D.E.A., ENPC Paris-Univ. Paris VI)
- Klich, Helene, "Analysis of creep-shrinkage interaction in concrete," July 1997 ((Travail de fin d'etudes) at ENTPE Lyon)
- Droniuc, Nikolai, "Soil-structure interaction: FE-analysis of aging shotcrete tunneling (co-supervised with E. Leca, LCPC).," October 1997 (ENPC Paris-Technical University)
- Ferreira, Iuri Alves, "Numerical modeling of thermo-chemo-mechanical couplings in early-age concrete (co-supervised with E.M.R. Fairbairn, COPPE/UFRJ).," March 1998 ((Federal University of Rio de Janeiro))
- Mohr, Dirk, "Thermochemomechanical couplings for cable-stayed concrete bridge design," March 1999 (ENPC Paris-Technical University of Karlsruhe)
- Peterson, Marcus G., "Stress-Induced Anisotropy of chemoplastic ASR-swelling in concrete structures," May 2000 (Dpt. of Civil and Environmental Engineering, MIT)
- Pellon, Victor, "A model for dehydration and moisture flow of concrete at high temperatures," May 2001 (Dpt. of Civil and Environmental Engineering, MIT)
- Constantinidis, Georgios, "The elastic properties of calcium-leached cement pastes and mortars: a multi-scale investigation," February 2002 (Dpt. of Civil and Environmental Engineering, MIT)
- Park, Hesson, "Model-based optimization of sections for ultra-high-performance (UHPC) concrete bridge girders," March 2003 (Dpt. of Civil and Environmental Engineering, MIT)
- Soh, Melvin, "Model-based design of Ultra High Performance Concrete Prototype Highway Bridge Girder"," May 2003

(Dpt. of Civil and Environmental Engineering, MIT)

- Ganneau, Francois, "From Nanohardness to Strength Properties of Cohesive-Frictional Materials —Application to Shales Materials," August 2004 (Dpt. of Civil and Environmental Engineering, MIT)
- Delafargue, Antoine, "Material Invariant Properties of Shales: Nanoindentation and Microporoelastic Analysis," August 2004 (Dpt. of Civil and Environmental Engineering, MIT)
- Shim, JongMin, "Prediction of Early-Age Cracking of UHPC Materials and Structures: A Thermo-Chemo-Mechanics Approach," December 2004 (Dpt. Of Civil and Environmental Engineering, MIT)
- DeJong, Matthew, "Sources of High Temperature Degradation of Cement-Based Materials: Nanoindentation and Microporoelastic Analysis," May 2005 (Dpt. of Civil and Environmental Engineering, MIT)
- Bobko, Chris, "Material invariant properties of sandstones by nanoindentation and microporoelastic analysis," May 2005 (Dpt. of Civil and Environmental Engineering, MIT)
- Cariou, Sophie, "The effect of the packing density on the indentation hardness of cohesive-frictional porous materials," June 2006 (Dpt. of Civil and Environmental Engineering, MIT)
- Gathier, Benjamin, "Multiscale strength homogenization – Application to shale nanoindentation," February 2008 (Dpt. of Civil and Environmental Engineering, MIT)
- Vanzo, James, "A nanochemomechanical investigation of carbonated cement paste," September 2009 (Dpt. of Civil and Environmental Engineering, MIT)
- Brooks, Zenzile, "Investigation of the Fracture Process zone in marble," May 2010 (Dpt. of Civil and Environmental Engineering, MIT)
- Bard, Romain, "Analysis of the scratch test for cohesive-frictional materials," May 2010 (Dpt. Of Mechanical Engineering, MIT)
- Ange-Therese Akono, "Fracture model for scratch testing," January 2011 (Dpt. of Civil and Environmental Engineering, MIT)
- Muhannad AbuHaykal, "Nano-chemomechanical assessment of rice husk ash cement by wavelength dispersive spectroscopy and nanoindentation," June 2011 (Dpt. of Civil and Environmental Engineering, MIT)
- Amer M. Dirieh, "Statistical Nano-chemo-mechanical assessment of shale by wave dispersive spectroscopy and nanoindentation," June 2011 (Dpt. of Civil and Environmental Engineering, MIT)
- Mehdi Akbarian, "Model-based pavement-vehicle-interaction simulation for life cycle assessment of pavements," June 2012 (Dpt. of Civil and Environmental Engineering, MIT)
- Alison Ledwith, "Thermal mass performance in residential construction: an energy analysis using a cube model," August 2012 (Dpt. of Civil and Environmental Engineering, MIT)
- William Wilson, "Grinding of cement clinkers: linking multi-scale fracture properties to system chemistry, mineralogy and microstructure," May 2013 (Dpt. of Civil and Environmental Engineering, MIT)
- Hadrien Laubie, "Linear elastic fracture mechanics in anisotropic solids: Application to fluid-driven crack propagation," May 2013 (Dpt. of Civil and Environmental Engineering, MIT)
- Siavash Monfared, "Microporoelastic modeling of organic-rich-shale," January 2015 (Dpt. of Civil & Environmental Engineering, MIT)
- Thomas Petersen, "Chemo-Poro-Elastic Fracture Mechanics of Wellbore Cement Liners: The Role of Eigenstress and Pore Pressure on the Risk of Fracture ," June 2015 (Dpt. of Civil & Environmental Engineering, MIT)
- Nicolas Bain, "Traffic models from a velocity point of view and implementation of traffic conditions in excess fuel consumption estimates," June 2015 (Dpt. of Civil & Environmental Engineering, MIT)
- Jacob Sobstyl, "Urban Physics: molecular approach to city texture analysis for controlling urbam heat island," June 2016 (Dpt. of Civil & Environmental Engineering, MIT)
- Hashim Alhamad, "Leveraging data for increased sustainability of products & factories," 2017 (Dpt. of Civil & Environmental Engineering/MIT Sloan School, MIT)
- Taha, Sama, "Nanomechanical Investigation of electron conducting cement-based materials," 2020 (Department of Civil & Environmental Engineering, MIT)
- Manav, Ipek Bensus, "(ongoing)," 2021 (Department of Civil & Environmental Engineering, MIT)
- Vartziotis, Elli Danae, "(ongoing)," 2022 (Dpt. Civil & Environmental Engineering, MIT)
- Vartziotis, Tina, "(ongoing)," 2022 (Department of Civil & Environmental Engineering, MIT)

MEng Theses:

- Davila, Ricardo S., "Recommendations for the design of ultra-high performance concrete structures," June 2007 (Dpt. of Civil and Environmental Engineering, MIT)
- François-Xavier, "UHPC Design of wind-turbine towers," May 2009 (Dpt. of Civil and Environmental Engineering, MIT)

Graduate Theses:

- Boukin, Katerina, - (Civil and Environmental Eng, MIT)
- Vartziotis, Tina Nepheli, - (Civil and Environmental Eng, MIT)
- Vartziotis, Elli Danae, - (Civil and Environmental Eng, MIT)
- Manav, Ipek Bensus, - (Civil and Environmental Eng, MIT)
- Botshekan, Meshkat, - (Civil and Environmental Eng, MIT)

Postdoctoral Associates and Fellows Supervised by Franz-Josef Ulm

CURRENT POSTDOCTORAL ASSOCIATES

Name	Appointment Start	Appointment End	PhD Granting Institution
Shukla, Asheesh	2018	2022	IIT

PREVIOUS POSTDOCTORAL ASSOCIATES

Name	Current Title	Current Employer
Soliman, Nancy	Postdoctoral Fellow	University of Texas
Magnin, Yann	postdoctoral associate	TOTAL
Chanut, Nicolas	postdoctoral associate	University of Leuven
Noori, Mehdi	postdoctoral associate	MIT
Mohammad Javad Abdolhussein Qomi	Assistant Professor	University of California at Irvine
Akbarian, Mehdi	postdoctoral associate	MIT
Thomas Lee	Assistant Professor	University of Sydney
Jeremie Berthonneau	postdoctoral associate	MIT
Amael Obliger	postdoctoral associate	University of California, Berkeley
Aikaterini Ioannidou	postdoctoral associate	MIT
Colin Bousige	CNRS research scientist	CNRS/France
Mija Hubler	Assistant Professor	University of Colorado in Boulder
Mathieu Bauchy	Assistant Professor	UCLA
Gyorgy Hantal	Assistant Professor	University of Budapest (Hungary)
Elena Strekalova	Quantitative Researcher/Senior Financial Analyst	SSGX State Street Associates
Kerstin Falk	research scientist	University of Freiburg/Germany
Sara Abedi	Assistant Professor	Texas A&M
Arghavan Louhghalam	tenure track assistant professor	University of Massachusetts at Dartmouth
Christian Hoover	tenure track assistant professor	University of Arizona
Romain Vermorel	Scientist (equivalent to tenure track assistant professor)	Universite de Pau et des Pays de l'Adour (France)
Kamyab Zandi Hanjari	Researcher	Chalmers University of Technology (Sweden)
Laurent Brochard	research scientist	Laboratoire Navier - Ecole des Ponts ParisTech (Champs-sur-Marne, France)
Konrad Krakowiak	tenure track assistant professor	University of Houston, TX
Enrico Masoero	Scientist (equivalent to tenure track assistant professor)	Newcastle University/England
Alexandru Botan	research scientist	Institut Francais du Petrol (IFP) Energies nouvelles
Simone Musso	Senior Research Scientist	Schlumberger
Hegoi Manzano	Scientist (equivalent to tenure track assistant professor)	Basque Country University, Bilbao, Spain
Alberto Ortega	Development Engineer and Manager	Schlumberger
Luca Sorelli	Professor	University of Laval (Canada)

Name	Current Title	Current Employer
Roman Lackner	Professor	University of Innsbruck
Partha Ganguly	Director of Technology Innovation	Baker Hughes/Halliburton
Olivier Bernard	Co-Founder & Chief Technology Officer	Oxand S.A
Eric Lemarchand	Senior Research Scientist	CNRS/France: Laboratoire NAVIER - ENPC/CNRS/IFSTTAR
Marc Mainguy	Senior Researcher	TOTAL/France
Christian Hellmich	Professor/ Head of Institute	Technical University of Vienna/Austria

Courses & Evaluations

Term	Course Number	Course Title	Teaching Role	Course Type	Num Students Registered	Num Survey Responses	Instructor Evaluation	Course Evaluation	Rating Scale
IAP1999		From spring friction devices to constitutive modeling in 6h (U/G)	Subject Development, Instructor	Seminar	N/A	N/A	N/A	N/A	
ST1999	1.051	Design of steel structures (U)	Instructor, co-in charge	Lecture	N/A	N/A	N/A	N/A	
FT1999	1.033/1.57	Mechanics of Material Systems (U/G)	Subject Development, Instructor	Lecture and Recitations	11	11	6.6	6.4	
ST2000	1.57	Durability Mechanics (G)	Subject Development, Instructor	Lecture and Seminar	9	9	6.8	6.7	
FT2000	1.033/1.57	Mechanics of Material Systems (U/G)	Subject Development, Instructor	Lecture and Recitations	15	13	6.6	6.2	
ST2001	1.57	Durability Mechanics (G)	Subject Development, Instructor	Lecture and Seminar	8	7	6.6	6.1	
FT2001	1.033/1.57	Mechanics of Material Systems (U/G)	Subject Development, Instructor	Lecture and Recitations	11	9	6.7	6.8	
ST2002	1.192	Introduction to Modeling and Simulation	Institute-wide class	Lecture	N/A	N/A	N/A	N/A	
FT2002	1.033/1.57	Mechanics of Material Systems (U/G)	Subject Development, Instructor	Lecture and Recitations	13	10	6.8	6.8	
ST2003	1.57	Durability Mechanics (G)	Subject Development, Instructor	Lecture and Seminar	6	6	6.5	6.8	
ST2003	1.192	Introduction to Modeling and Simulation	Institute-wide class	Lecture	N/A	N/A	N/A	N/A	
FT2003	1.033/1.57	Mechanics of Material Systems (U/G)	Subject Development, Instructor	Lecture and Recitations	10	6	6.3	6.2	
ST2004	1.57	Durability Mechanics (G)	Subject Development, Instructor	Lecture and Seminar	7	5	6.0	5.8	
ST2004	1.192	Introduction to Modeling and Simulation	Institute-wide class	Lecture	N/A	N/A	N/A	N/A	
FT2004	1.033/1.57	Mechanics of Material Systems (U/G)	Subject Development, Instructor	Lecture and Recitations	10	7	6.8	6.3	
ST2005	1.192	Introduction to Modeling and Simulation	Institute-wide class	Lecture	N/A	N/A	N/A	N/A	
FT2005	1.050	Engineering Mechanics I	Instructor, New Subject Development	Lecture	35	24	5.5	5.0	
FT2006	1.050	Engineering Mechanics I	Instructor	Lecture	45	36	5.9	5.0	
FT2008	1.050	Engineering Mechanics I	Instructor	Lecture	54	37	6.2	5.5	

Term	Course Number	Course Title	Teaching Role	Course Type	Num Students Registered	Num Survey Responses	Instructor Evaluation	Course Evaluation	Rating Scale
FT2009	1.050	Engineering Mechanics I	Instructor	Lecture	41	26	6.3	5.8	1 (Very Poor) - 7 (Excellent)
ST2010	1.570	Micromech & Durability: Solids	Instructor	Lecture	5	4	6.8	6.5	1 (Very Poor) - 7 (Excellent)
ST2011	1.570	Micromech & Durability: Solids	Instructor	Lecture	5	5	7.0	6.8	1 (Very Poor) - 7 (Excellent)
FT2011	1.050	Engineering Mechanics I	Instructor	Lecture	28	9	6.1	5.6	1 (Very Poor) - 7 (Excellent)
ST2012	1.570	Micromech & Durability: Solids	Instructor	Lecture	7	3	5.7	5.3	1 (Very Poor) - 7 (Excellent)
FT2012	1.57	Mechanics of Materials	Instructor	Lecture	3	1	7.0	7.0	1 (Very Poor) - 7 (Excellent)
ST2013	1.570	Micromech & Durability: Solids	Instructor	Lecture	4	1	7.0	7.0	1 (Very Poor) - 7 (Excellent)
FT2013	1.050	Engineering Mechanics I	Instructor	Lecture	25	20	5.8	5.4	1 (Very Poor) - 7 (Excellent)
ST2014	1.570	Micromech & Durability: Solids	Instructor	Lecture	3	3	6.7	6.3	1 (Very Poor) - 7 (Excellent)
FT2014	1.050	Solid Mechanics	Instructor	Lecture	12	10	6.6	6.2	1 (Very Poor) - 7 (Excellent)
FT2015	1.050	Solid Mechanics	Instructor	Lecture	6	5	6.6	5.8	1 (Very Poor) - 7 (Excellent)
ST2016	1.S992	Spec Subj: Civil & Envir Engr	Instructor	Lecture	9	8	6.4	5.5	1 (Very Poor) - 7 (Excellent)
FT2016	1.050	Solid Mechanics	Instructor	Lecture	7	6	6.3	6.5	1 (Very Poor) - 7 (Excellent)
ST2017	1.035	Multiscale Character of Mats	Instructor	Lecture	5	3	6.3	6.3	1 (Very Poor) - 7 (Excellent)
FT2017	1.050	Solid Mechanics	Instructor	Lecture	3	3	6.7	6.3	1 (Very Poor) - 7 (Excellent)
ST2018	1.035	Multiscale Character of Mats	Instructor	Lecture	4	3	5.7	5.0	1 (Very Poor) - 7 (Excellent)
FT2018	1.050	Solid Mechanics	Instructor	Lecture	11	7	6.7	6.1	1 (Very Poor) - 7 (Excellent)
ST2019	1.035	Mechanics of Materials	Instructor	Lecture	10	3	6.3	5.7	1 (Very Poor) - 7 (Excellent)
FT2019	1.050	Solid Mechanics	Instructor	Lecture	13	8	6.5	6.0	1 (Very Poor) - 7 (Excellent)

Term	Course Number	Course Title	Teaching Role	Course Type	Num Students Registered	Num Survey Responses	Instructor Evaluation	Course Evaluation	Rating Scale
ST2020	1.035	Mechanics of Materials	Instructor	Lecture	11	N/A	N/A	N/A	N/A
FT2020	1.050	Solid Mechanics	Instructor	Lecture	6	N/A	N/A	N/A	N/A
ST2021	1.035	Mechanics of Materials	Instructor	Lecture	7	N/A	N/A	N/A	N/A
FT2021	1.S979	Sp Grad Subj: Civ & Envir Engr	Lecturer	Lecture	2	N/A	N/A	N/A	N/A
FT2021	1.050	Solid Mechanics	Instructor	Lecture	3	N/A	N/A	N/A	N/A

Photograph of Franz-Josef Ulm

