

PERSONAL INFORMATION

Mohammed Matallah



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Sex Male | 09/01/1979 | Nationality Algerian

WORK EXPERIENCE

- July 2017 - Present **Professor (Full)**
University of Tlemcen, BP 230, Tlemcen Algeria
Civil Engineering Department.
- January 2015- Present **Laboratory Head (RISAM Research Laboratory-Tlemcen-Algeria)**
- January 2010 - July 2017 **Associate Professor**
University of Tlemcen, BP 230, Tlemcen Algeria
Associate Professor : Civil Engineering Department.
- January 2009 - December 2009 **Post-Doctoral Position**
University of Pau et des pays de l'Adour , SIAME Research Laboratory , France
MEFISTO French National project " Numerical Modelling of Concrete Cracking in reinforced Concrete Structures"
Aiming to develop new method for the the evaluation of cracks openings in concrete structures.
- June 2007 - December 2008 **Post-Doctoral Position**
University of Pau et des pays de l'Adour , SIAME Research Laboratory , France
Tight Gas Reservoirs Project (TGR) Research project- TOTAL
Electro-Hydraulic Fracturing of Rocks, application to Tight Gaz Reservoirs : Experimental, modelling

EDUCATION AND TRAINING

- June 2011 **Habilitation (The highest academic qualification in Algeria)**
Habilitation permitting to supervise Phd Thesis and research
- October 2002 – October 2006 **PhD – Thesis " Numerical Modelling of anisotropic damage and unilateral effects in concrete structures**
University of Pau, France
- October 2001 – June 2002 **Diplôme d'Etudes Approfondies (A master of advanced studies)**
Ecole centrale of Nantes, France
- 1996- 2001 **Civil Engineer Degree**
University Of Tlemcen, Algeria

PERSONAL SKILLS

Mother tongue(s)	Arabic				
Other language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
French	C2	C2	C2	C2	C2
English	C1	C1	B2	B2	C1
Wall street Institut Certificat : Milstone Level					

TEACHING EXPERIENCE

Course Taught/Developed	<p>Numerical methods : Finite element method, Finite Difference Method Plastic limit analysis : Application of the limit analysis theory to the analysis of the structural collapse Non linear analysis : Plasticity, Damage, Fracture Soil Dynamics : Site effect, soil response under seismic loading Structural Dynamics : Dynamic analysis, earthquake engineering Structural analysis , Rational Mechanics</p>
Skill Developed	<p>Depth knowledge of the taught courses : communication abilities, patience and responsibility Responsible for planning of teaching of undergraduate and postgraduate students</p>

RESEARCH EXPERIENCE

Research Interest	<p>Computational modelling of fracture in quasi-brittle materials, Coupled problems (Transfer, Creep, Damage, ...), Reinforced concrete structures, concrete fracture modelling, seismic risk and earthquake engineering.</p>
PhD Thesis Supervised	<p>* A. Nouali “ Numerical modelling of seismic response of concrete structures : influence of the Size effect” December 2017.</p> <p>* A. Belbachir “ Experimental and numerical investigation of the size effect of concrete structures under shear loadings” Thesis co-supervised by Pr A. Loukil EC Nantes France. September 2018.</p> <p>* N. Aissaoui “Mesoscopic Modelling of concrete fracture: Energetic aspects and size effect” May. 2018</p> <p>*A. Bessaid “ Computational modelling of the gravity-dams response under seismic loading. Expected 2019</p>

PhD Committee Member

- 2012 J. Saliba “ Contribution of acoustic emission to the comprehension and on modeling of coupled creep - damage in concrete” Ecole Centrale of Nantes , France (<https://tel.archives-ouvertes.fr/tel-00779962/document>)
- 2015 A. Ras “ Study of the behaviour of steel structures with viscous-fluids dumpers under seismic loading” University of Tlemcen, Algeria
- 2018 S. Boudghene. “ Study of the behaviour of steel structures with viscous-fluids dumpers under seismic loading” University of Tlemcen, Algeria
- 2018 M. EL-HOUCINE. Controlled Collapse of a Massive Structure Partially Damaged by an Earthquake in an Urban Area: Theoretical Formulations and Numerical Models

Research Project

- 2007-2009 (Post-Doc position) Tight Gas Reservoirs: Electro-Hydraulic Fracturing of Rocks ; TOTAL-CNRS France, University of Pau
- * Electro-hydraulic Shock Wave Generation As A Means To Increase Intrinsic Permeability Of Mortar, O. Maurel, T. Rees, M. Matallah, A. De Ferron, W. Chen, C. Laborderie, G. Pijaudier-Cabot, A. Jacques, F. Rey-Bethbeder, Cement And Concrete Research, 40,1631-1638, 2010.
*Modelling anisotropic damage and permeability of mortar under dynamic loads , W. CHEN, O. MAUREL, T . REESS, M. MATALLAH, A. de FERRON, C. LABORDERIE, G. PIJAUDIER-CABOT, Eur . J. Env. Civil Engrg . Vol. 15, 727-742, 2011
*Experimental And Numerical Study Of Shock Wave Propagation In Water Generated By Pulsed Arc Electrohydraulic Discharges , W. Chen, O. Maurel, C. La Borderie, T . Reess, A. De Ferron, M. Matallah, G. Pijaudier-Cabot, A. Jacques, F. Rey-Bethbeder, Heat And Mass Transfer, 50 (5), 673-684, 2014.
- 2009-2010 (Post-doc Position) Numerical Modelling of Concrete Fracture in Concrete Structures (MEFISTO) French National Project (University of Pau)
- * A practical method to estimate crack openings in concrete structures Mohammed Matallah, C La Borderie, O Maurel International Journal for Numerical and Analytical Methods in Geomechanics 43(15),1615-1633 2010.
- 2011-2014 (Project Manager) Computational Modelling of Concrete Fracture in Concrete structures under seismic loading (PNR National Project)
- 2015-2016 (Task Manager) SEAL - SEismic structure of northern ALgeria from the surface to the upper mantle – an integrated framework for a better risk assessment (Portugal-Algeria Research Project)
- 2016-2019 (Member) COPE : Coping with Earthquakes Strengthening resilience of local COmmunities by sharing knowledge and Procedures: Earthquakes as a benchmark Horizon 2020- Work Programme (European Commission)

Invited Researcher

December 2010	Invited Professor : University of Pau France
June 2012- June2013	Junior Research Chair Ecole Centrale de Nantes France
July 2014	Invited Professor Ecole Centrale fo Nantes France
July-September 2015	Invited Professor : University of Pau France

Journal Reviewer

Engineering Structures
Comptes Rendus Mecanique
Advances in Concrete Construction, *An International Journal*
Structural Engineering and Mechanics, *An International Journal*
International Journal for Numerical Methods in Engineering
International Journal of Geomate

Conference Committee Member

AUGC 2011 : Scientific Committee Member, Organizing Committee Member -Algeria
COINVEDI 2012 : Scientific Committee Member, Spain
AUGC2015 Scientific Committee Member Bayonne - France
CICCOM 2015 Scientific Committee Member Tlemcen –Algeria
AUGC2016 Scientific Committee Member Liège- Belgium
INVACO2016: Scientific Committee Member – Tunisia
CICCOM 2018 Scientific Committee Member Tlemcen –Algeria

Scientific Publications
SCI Journals Papers

- M. Djelil, N. Djafour, **M. Matallah** & M. Djafour “Constrained spline Finite Strip Method for thin-walled members with open and closed cross-sections”. *Thin-Walled Structures*. Volume 132. 302-315. **2018**
- A. Nouali & **M. Matallah** “Size Effect on the Plastic rotational capacity of RC Elements: Critical Review of EC8” *European Journal of Environmental and Civil Engineering*. **2018. In Press**
- A. Belbachir, S.Y Alam, **M. Matallah** & A. Loukili “Size Effect on the contribution of the aggregate interlock mechanism in RC elements without shear reinforcement”. *European Journal of Environmental and Civil Engineering* **2018. In Press**
- N. Aissaoui & **M. Matallah** “A simplified approach to assess the size effect on the shear-flexure interaction in RC elements” *International Journal of Geomate*. 12(32) 126-133. **2017**
- A. Nouali & **M. Matallah** “A simplified approach to assess the size effect on the shear-flexure interaction in RC elements” *Engineering structures*. 144: 151-162. **2017**
- N. Aissaoui, **M. Matallah**, “ Numerical and Analytical Investigation of the size-dependency of the FPZ length in concrete” *International Journal of Fracture* . 205(2):127-138 **2017**
- J. Saliba, **M. Matallah**, A. Loukili, D. Grégoire , G. Pojaudier-Cabot “Experimental and numerical analysis of crack evolution in concrete through acoustic emission technique and mesoscale modelling” *Engineering Fracture Mechanics* . Volume 167 123-137. **2016**
- B. Hilloulin, F. Grondin, **M. Matallah**, A. Loukili, “ Modelling of autogenous healing in Ultra High Performance Concrete” *Cement and Concrete Research* . Volume 61 64-70 **2014**
- F. Grondin & **M. Matallah** “How to consider the interfacial transition zone in modelling of concrete” *Cement and Concrete Research*. Volume 58. 67-75 **2014**.
- W.Chen, O. Maurel, C. La Borderie, T. Reess, A.De Ferron, **M. Matallah**, G. Pijaudier-Cabot, A. Jacquese, F. Rey-Bethbeder “Experimental and numerical study of shock wave propagation in water generated by Pulsed Arc Electrohydraulic Discharges” *Heat and Mass Transfer*.. **2013**
- **M. Matallah**, M. Farah, F. Grondin, A. Loukili, E. Rozière “ Size- independent fracture energy of concrete at very early ages by inverse analysis ” *Engineering Fracture Mechanics* 109, 1–16, **2013**
- J. Saliba, F. Grondin, **M. Matallah**, A. Loukili, H. Boussa “Relevance of a mesoscopic modeling for the coupling between creep and damage in concrete ” *Mechanics of Time-Dependent Materials*” Volume 17, Issue 3, pp 481-499. **2012**.
- W. Chen ; O. Maurel, T. Reess, **M. Matallah**, A. De Ferron, C. La Borderie, G. Pijaudier-Cabot, « Modelling anisotropic damage and permeability of mortar under dynamic loads” *European Journal of Environmental and Civil Engineering* .15(5):727–742. **2011**.
- O. Maurel, T. Reess, **M. Matallah**, A. De Ferron, W. Chen , C. La Borderie, G. Pijaudier-Cabot , A. Jacques “Electrohydraulic Shock Wave Generation As A mean to Increase Intrinsic Permeability of Concrete” *Cement & Concrete Research*, 40(12) **2010**.
- **M. Matallah**, La Borderie C., Maurel O. “A Practical Method to Estimate Crack Openings in Concrete Structures”, *International Journal for Numerical and Analytical methods in Geomechanics*, 34(15). **2010**.

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| | <ul style="list-style-type: none">▪ T. Nguyen, C. Lawrence, C. La Borderie, M. Matallah, G. Nahas, “A Mesoscopic Model for a Better Understanding of the Transition from Diffuse Damage to Localized Damage”, <i>European Journal of Environmental and Civil Engineering</i>. 14 : 751–776. 2010▪ M. Matallah, C. La Borderie: “Inelasticity Damage Based Model to Numerical Modeling of Concrete Cracking” <i>Engineering Fracture Mechanics</i> 76(8):1087-1108, 2009. <p>M. Matallah, C. Laborderie “Modélisation des Effets Unilatéraux Basés Sur l’Ouverture de Fissures” <i>European Journal of Environmental and Civil Engineering</i>. 12(9):1105–1122. 2008</p> |
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**Scientific Publications
(Recent International
Conferences 2009-2017)**

N. Abdelhafid, **M. Matallah**. Une approche simplifiée pour la prise en compte de l'effet d'échelle sur la rupture par flexion-cisaillement. 35èmes Rencontres de l'AUGC Nantes 21-24 mai 2017

A. Belbachir, M. Matallah, S. Yasir, A. Loukili Analyse numérique-expérimentale croisée pour l'identification des mécanismes de transfert de l'effort tranchant. 35èmes Rencontres de l'AUGC Nantes 21-24 mai 2017

C. Laborderie, **M. Matallah** Simulation at the meso-scale of the crack induced permeability in concrete, estimate of the non linear evolution of the flow coefficient. International Conference on Computational Fracture and Failure of Materials and Structures. CFRAC France. 2017

A. Nouali & **M. Matallah** Size Effect On The Rotational Capacity Of Reinforced Concrete Beams: Numerical Investigation Vs. Eurocode 8. 16th World Conference on Earthquake, Santiago-CHILI. 2017

A. Belbachir, S. Y. Alam, **M. Matallah**, A. Loukili Size effect on behavior of critical shear crack in reinforced concrete beam using digital image correlation. FRAMCOS-9. Berkeley, California USA. May 29-June 2016

M. Matallah, C. La Borderie 3D numerical modeling of the crack-permeability interaction in fractured concrete. FRAMCOS-9. Berkeley, California USA. May 29-June 2016

Belbachir, S. Y. Alam, **M. Matallah**, A. Loukili Monitoring of cracking in reinforced concrete beam by using Digital Image : Correlation (DIC) and Acoustic Emission (AE). ACNDT 2016 / IC-WNDT-MI'16. Oran-Algeria

Saliba, J., **Matallah, M.**, Morel, S. Experimental And Numerical Analysis Of Crack Evolution In Concrete Through Acoustic Emission Technique And Mesoscale Modeling. FRAMCOS-9. Berkeley, California USA. May 29-June 2016

N. Aissaoui, and **M. Matallah** "Sources of error and limits of applying the energetic-based-regularization method "COMPLAS XIII: proceedings of the XIII International Conference on Computational Plasticity: fundamentals and applications 2015 Barcelona, Spain.

N. Aissaoui & **M. Matallah** "Méthode de régularisation énergétique basée sur l'approche Crack Band : Limites d'application et sources d'erreurs" AUGC 2015, Bayonne. France.

N. Aissaoui, S. Ghezali and **M. Matallah** "Macro Vs Mesoscale Modelling of Fracture in concrete beams: Size Effect & Crack Openings" ICCMAT 2014. International Conference on Construction Materials and Structures. 2014 Johannesburg, South Africa.

N. Aissaoui & **M. Matallah** "Size Effect in Concrete Structures : A mesoscopic approach Vs Fracture Mechanics » AUGC 2014, Orleans. France.

M. Farah, F. Grondin, **M. Matallah** and A. Loukili "Multi-scales computation of creep deformation of concrete at very early-age" E URO-C 2014: Edited by René de Borst CRC Press 2014 Pages 797-804

B. Hilloulin, F. Grondin, M. Matallah & A. Loukili "Simulation of autogenous healing in cementitious materials and recovery of mechanical properties", 4th International Conference on Self-Healing Materials. Ghent Belgium. 2013

M. Farah, F. Grondin, M. Matallah, A. Loukili, J. Saliba "Multi-scales characterization of the early-age creep of concrete In Proceedings "Mechanics and Physics of Creep, Shrinkage, and Durability of Concrete: pp. 211-218. <http://dx.doi.org/10.1061/9780784413111.024>
Edited by Ulm Franz-Josef, Ph.D., P.E.; Jennings M. Hamlin; and Roland J.-M Pelleng

M. Farah; F. Grondin, M. Matallah, A. Loukili, J. Saliba « Modélisation multi-échelles du fluage du béton au très jeune âge » AUGC Cachan France 2013

M. Matallah, M. Farah, F. Grondin, J. Saliba, A. Loukili "Fracture energy of concrete at very early ages by inverse analysis" VIII International Conference on Fracture Mechanics of Concrete and Concrete Structures FraMCoS 8- Toledo - Spain, 2013

A. Medjahed, M. Matallah, S. Ghezali, M. Djafour, "A performance modeling strategy based on multifiber beams to estimate crack openings in concrete structures under cyclic loadings" *15 World Conference on Earthquake Engineering*, Lisbon - Portugal. **2012**

J. Saliba, F. Grondin, M. Matallah, A. Loukili, H. Boussa "Modelling of basic creep effect on concrete damage at a mesoscale level" *ECCOMAS Young Investigators Conference*, Aveiro- Portugal. **2012**

W. Chen, O. Maurel, T. Reess, M. Matallah, A. De Ferron, C. La Borderie, G. Pijaudier-Cabot, A. Jacques "Couplage endommagement-fissuration-perméabilité dans les mortiers sous chargement dynamique rapide", *AUGC, L Bourbole*, FRANCE **2010**.

C. La Borderie, M. Matallah, TD Nguyen, JM Torrenti, M. Briffaut, F. benboudjema "Hydration Induced Meso Stress and their Consequences on the Cyclic Behavior", *AGS'10 Advances in Geomaterials and Structures*. Tunisie, **2010**

C. La Borderie, M. Matallah, F. Dufour, C. Giry, F. Ragueneau, A. Delaplace "From Damage to Crack Opening: Control of cracking in R.C structures, a major step towards serviceability". *International workshop. CEOS.fr*, Paris, **2009**.

M. Matallah, C. La Borderie C., O. Maurel 'Crack Opening Computation Using a Continuum Damage Based Approach' *X International Conference On Computational Plasticity, COMPLAS X*. Barcelona, Spain. **2009**

T. Reess, A. Silvestre de Ferron, O. Maurel O., M. Matallah, W. Chen, C. La Borderie, G. Pijaudier-cabot, F. Rey Bethbeder, A. Jacques, J. Lassus: "Electrohydraulic shock wave generation as a mean to increase intrinsic permeability of concrete", *17th IEEE International Pulsed Power Conference*. Washington, USA. **2009**.

O. Maurel, T. Reess, M. Matallah, W. Chen, C. La Borderie, G. Pijaudier- Cabot "Permeability and microcracking of mortar and rocks subjected to dynamic loading". *4th Biot Conference on Poromechanics*", Columbia University USA. 2009.

C. La Borderie, O. Maurel, M. Matallah « Couplage Endommagement-Fissuration : Application au Calcul de Structures En Béton Armé. *CFM* Marseille France, **2009**.