PERSONAL INFORMATION

Giuseppe Sciumè

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Sex Male | Date of birth 30/12/1983 | Nationality Italian

WORK EXPERIENCE

04/2014–Present

Assistant Professor

Dept of Innovation Engineering - University of Salento, Lecce (Italy)

2013

Research Fellow - Academic Project AACSE (Algorithms and Architectures for Computational Science and Engineering)

Dept of Civil, Environmental and Architectural Engineering - University of Padua, Padua (Italy)

01/2010 – 12/2012

PhD Student

University of Padua and École Normale Supérieure de Cachan

PhD cotutelage program, Padua / Cachan

EDUCATION AND TRAINING

03/2013

Double PhD Degree obtained within a cotutelage PhD program between University of Padua and ENS Cachan

University of Padua (Dept ICEA) and Ecole Normale Supérieure de Cachan (LMT-Cachan)

- Title of the thesis: "Thermo-hygro-chemo-mechanical model of concrete at early ages and its extension to tumor growth numerical analysis".
- Thesis' Directors: Bernhard A. Schrefler and Yves Berthaud.

07/2009

Laurea Specialistica in Ingegneria Civile (Indirizzo Strutture)

2nd cycle degree-course in Civil Engineering (i.e. Master Level, 120 ECTS)

University of Padua, Padua (Italy)

04/2006

Laurea Triennale in Ingegneria Civile

1st cycle degree-course in Civil Engineering (i.e. Bachelor Level, 180 ECTS)

University of Padua, Padua (Italy)

PERSONAL SKILLS

Mother tongue: Italian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	B2	B2	B2	C1
French	C1	B2	B2	B2	B2

RESEARCH SKILLS

Multi-physics modeling of saturated and partially saturated porous media: thermo-hygro-chemo-mechanics of concrete at early age; concrete damage mechanics; multiphase modeling of tumor growth and other biological tissue.

RESEARCH EXPERIENCES

January 2013 — **Methodist Hospital**
Two weeks at the Research Center of the Methodist Hospital of Houston (collaboration for the development of a tumor growth multiphase model).

October 2011 — **Stage CEA (Commissariat à l'Energie Atomique et aux Energies Alternatives) de Saclay (France)**
Two weeks of training for the development of multiphase models in the FE code Cast3M.

August 2011 — **Bauhaus Summer School**
Weimar: Bauhaus Summer School "Model Validation and Simulation".

2008/09 — **'Stage Recherche' at ENS Cachan**
9 months at the Laboratoire de Mécanique et Technologie of Cachan within the European programme ERASMUS (scientific supervisors: F. Benboudjema and C. De Sa);

RELEVANT ACTIVITIES AND RESPONSIBILITIES

2014: — **Benchmark VERCORS**
Participant of the benchmark VERCORS (VErification Réaliste du COnfinement des RéacteurS) organized by EDF (Electricité de France).

2014: — **COST ACTION TU1404**
Involved in the COST Action TU1404 ("Towards the next generation of standards for service life of cement-based materials and structures"). Substitute member in the Management Committee.

October 2013: — **Workshop VINCI II**
Organization in Cachan of the second bilateral workshop: "Multi-physics modeling of concrete and heterogenous materials" (http://workshopvinci.weebly.com).

May 2012 — **Workshop VINCI I**
Organization in Padua of the first bilateral workshop: "Multiphysics numerical modeling and computational strategies".

2011-2012 — **Benchmark ConCrack**
Participation to this French international benchmark which has been organized within the National French project CEOS ('Comportement et Evaluation des Ouvrages Spéciaux vis-à-vis de la fissuration et du retrait').

2010/2011 — **Projet VINCI**
Drawing up of a research project for application to the VINCI Program of Univerità Italo-Francese (this program supports the collaboration between French and Italian Doctoral Schools). The project, whose title is: "Modélisation multi-échelle pour le calcul aux éléments finis de problèmes multi-physiques couplés", has been selected and financed (24 k€ during three years).

AWARDS

- Alert Geomaterials PhD PRIZE 2014 (Assois, France)
- 2ème Prix de l'Université (*ex equo*) du Conseil General du Val de Marne (Creteil, France)

RESEARCH FELLOWSHIPS

- PhD scholarship of the Italian Ministry of Education;
- "Bourse Internationale ENS-Cachan" (10 months);
- Vinci thesis: the Univerità Italo-Francese has supported the Italy-France mobility cost during the PhD;
- Post-doctoral research fellowship at the Dept of Civil Environmental and Architectural Engineering of the University of Padua (Strategic Research Project 'Algorithms and Architectures for Computational Science and Engineering' (STPD08JA32);

PAPERS IN INTERNATIONAL JOURNALS

2014

Sciumè G., Boso D. P, Gray W. G, Cobelli C., Schrefler B. A. (2014). A two-phase model of plantar tissue: a step toward prediction of diabetic foot ulceration. International Journal for Numerical Methods in Biomedical Engineering, 30(11): 1153–1169.

Sciumè G., Gray W.G., Hussain F., Ferrari M, Decuzzi P, Schrefler B. A. (2014). Three phase flow dynamics in tumor growth. Computational Mechanics, 53(3): 465-484.

Sciumè G., Ferrari M., Schrefler B.A. (2014) Saturation–pressure relationships for two- and three-phase flow analogies for soft matter. Mechanics Research Communications, 62: 132–137.

Sciumè G., Santagiuliana R., Ferrari M., Decuzzi P., Schrefler B. A. (2014) A tumor growth model with deformable ECM. Physical Biology, 11(6): 065004.

2013

Sciumè G., Benboudjema F., De Sa C., Pesavento F., Berthaud Y., Schrefler B. A. (2013). A multiphysics model for concrete at early age applied to repairs problems. Engineering Structures, 57, 374-387.

Sciumè G., Gray W. G., Ferrari M., Decuzzi P., Schrefler B. A. (2013). On Computational modeling in tumor growth. Archives of Computational Methods in Engineering, 20(4):327-352.

Sciumè G., Shelton S., Gray W. G., Miller C. T., Hussain F., Ferrari M., Decuzzi P., Schrefler B. A. (2013). A multiphase model for three-dimensional tumor growth. New Journal of Physics, 15, 015005.

2012-2011

Sciumè G., Shelton S., Gray W. G., Miller C. T., Hussain F., Ferrari M., Decuzzi P., Schrefler B. A. (2012). Tumor Growth Modeling from the Perspective of Multiphase Porous Media Mechanics. Molecular & Cellular Biomechanics, 9(3), 193-212.

Schrefler B. A., Pesavento F., Sanavia L., Sciumè G., Secchi S., Simoni L. (2011). A general framework for modeling long-term behavior of earth and concrete dams. Frontiers of Architecture and Civil Engineering in China, 5(1), 41-52.

Submitted and in preparation papers

Sciumè G., Benboudjema F., Zavarise G. (2014) Young concrete damage mechanics. *In preparation*.

PROCEEDINGS OF INTERNATIONAL CONFERENCES

Sciumè G., Guiotto A., Sawacha Z., Boso D.P., Cobelli C and Schrefler B.A. (2013) A porous media approach for foot biomechanics. Proceedings of the XII International Conference on Computational Plasticity. Fundamentals and Applications - Barcellona 3-5 Settembre 2013

Schrefler B.A. and Sciumè G. (2013) Modelling of interaction phenomena in tumor growth. Proceedings of the XII International Conference on Computational Plasticity. Fundamentals and Applications - Barcellona 3-5 Settembre 2013

Sawacha Z., Guiotto A., Boso D.P., Sciumè G., Guarneri G., Scarton A., Avogaro A., Schrefler B.A. and Cobelli C. (2013) Development of a foot multiscale model for diabetic foot prevention. Proceedings of the 19th Congress of the European Society of Biomechanics. 25-28 August Patras

Sciumè G., F. Benboudjema and Schrefler B.A. (2012). Multiphase modeling of concrete: hydration and associated thermo-hygro-mechanical phenomena. Proceedings of the 4th International Workshop of Young Doctors in Geomechanics, W(H)YDOC 12

Schrefler B.A., Pesavento F., D. Gawin and Sciumè G. (2012). A multiphase concrete model with application to high temperature, structural repair, leaching and Alkali-Silica reaction. Proceedings of Numerical Modeling Strategies for Sustainable Concrete Structures. Aix-en-Provence, France : May 29 - June 1, 2012 conference

Sciumè G., Schrefler B.A., Pesavento F. (2012). Thermo-hygro-chemo-mechanical modeling of the behavior of a massive beam with restrained shrinkage. Proceedings of RILEM-JCI international workshop on crack control of mass concrete and related issues concerning early-age of concrete structures, 133-144.

Sciumè G., Schrefler, B.A. (2011). Multi-Physics Numerical Model for the Repair of Concrete Structures. Concrete Solutions 2011 – Proceedings of the 4th International Conference on Concrete Repair . Dresden 2011.

Sciumè, G., Schrefler B.A., Pesavento F. (2011). Thermo-hygro-chemo-mechanical multi-scale modelling of concrete at early ages. TCCM2011 – Proceedings of Trends & Challenges in Computational Mechanics. 12-14 September 2011, Padua, Italy.

Sciumè G., Schrefler B.A. (2010). A Thermo-Hygro-Chemo-Mechanical Numerical Approach to Prevent Problems of Repair of Concrete Structures. Proceedings of The Tenth International Conference on Computational Structures Technology. Valencia, 14-17 September 2010.

PROCEEDINGS OF NATIONAL CONFERENCES

Sciumè G., Schrefler B.A., Pesavento F., Benboudjema F. (2013) Modeling of porous media: from concrete to biomechanics. Atti del XXI Congresso dell'Associazione Italiana di Meccanica Teorica e Applicata. Torino 17 al 20 settembre 2013.

Sciumè G. (2013) Young concrete modeling for civil engineering applications. Articles des 31èmes Rencontres Universitaires de l'AUGC (Association Universitaire Génie Civil). Cachan 29-31 Mai 2013

Sciumè G., Benboudjema F., Pesavento F., De Sa D., Berthaud Y., Schrefler B.A. (2012). Thermo-hygro-chemo-mechanical modeling of concrete at early ages: theory and application. Proceedings of Multiphysics Numerical Modeling and Computational Strategies, 17-18 May 2012. Padua, Italy.

Benboudjema, F., Briffaut, M., Sciumè, G., De Sa, C. (2011). Etude du comportement au jeune âge de structures massives. 29e Rencontres de l'AUGC. 2011.

SEMINARS

Sciumè G.: “Development and validation of two models based on multiphase porous media mechanics: from concrete at early age to tumor growth modeling”. Seminaire des Doctorants, LMT-ENS Cachan, 28 Juin 2012.

REPORTS

Schrefler B.A., Sciumè G. , Pesavento F. (2012) Modelling of the THCM behavior of a large beam specimens with restrained shrinkage – Final Report of the International Benchmark ConCrack (National French Project CEOS).

POSTER SESSIONS

Sciumè G., Benboudjema F., De Sa C., Pesavento F., Berthaud Y., Schrefler B.A. (2012). Modélisation numérique du béton au jeune âge. Application aux structures massive set aux problèmes des réparations. Entretiens du RGC&U 2012. Maison des Travaux Publics, Paris 24 Octobre 2012

Sciumè G., Gray W. G., Decuzzi P., Schrefler B. A. (2012). Three-phase flow in tumor microenvironment. Constitutive relationships for the closure of the general model. The First Nemb Venice Workshop On "Cancer Nanotechnology". October 11-12, 2012 Venice, Italy