

Jérôme Fortin

French

Born January 24, 1977

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Education

- 2006-2005 Assistant professor at the Ecole Normale Supérieure in Paris
- 2005-2002 PhD thesis in Earth Sciences from the *University of Paris VI* under the direction of Yves Guéguen and Yves Leroy awarded with first class honor the 16 November 2005.
Thesis title: *Homogeneous and localized compaction of porous sandstone. Experimental and theoretical study.*
- 2002-2001 MSc in Hydrology and Hydrogeology (*University of Paris VI*), ranking 3
- 2002-2000 Engineer diploma in the rural engineering, water and forest (ENGREF)
- 2000-1999 Admitted to the national competitive exam for recruiting senior teachers ('Agrégation'), in civil engineering (national ranking 13).
- 1999-1997 Undergraduate studies at the Ecole Normale Supérieure de Cachan - BSc in Civil Engineering, ranking 2.
- 1997-1995 Preparatory course for national competitive exam for entering French 'Grandes Écoles' (intensive undergraduate courses in mathematics, physics and chemistry). Admitted as a civil servant student to the Ecole Normale Supérieure de Cachan, in Civil Engineering .

Thematic schools :

- june 2002 Course in rock physics : 'Deformation in the Earth's Continental Crust - Theory, Experiment and Modelling'.

Collaboration - Research visits

- 2006 (6 months) : GeoforschungsZentrum Postdam, Germany, Berlin, in the team of G. Dresen and S. Stanchis : Acoustic emission and elastic wave velocities evolution during deformation of limestone
- 2004 (6 months) : GeoforschungsZentrum Postdam, Germany, Berlin, in the team of G. Dresen and S. Stanchis : Compaction bands growth from acoustic emission
- 2002 (2 months) : Laboratory of rock physics, Stony Brook, State of New York, in the team of T.F. Wong : Study of mechanical compaction of porous rock.

Honors and Awards

- Mai 2004 : German Academic Exchange Service (DAAD) grant
- July 2004 : *Region Ile de France* Exchange Service grant

Teaching

- 2007-2005 : Lecturer at the Ecole Normale Supérieure (in Rock Physics, Geomechanics, Hydrogeology, Mathematics)
- 2005-2002 : Lecturer at the University of Paris VI (in Hydrogeology, Hydrology, Environmental sciences, Geotechnic)

Students

- Adelinet M., 2006 : Hydrodynamic and mineralogical characterization of soils weathered on volcanic rocks, Galapagos Islands - Ecuador *MSc Thesis, University of Paris VI, Co-supervisor*
- Laine R., 2005 : Mechanical behavior of clay (Argilites) *first year MSc project, Ecole Normale Supérieure, Co-supervisor*

Publications

- J. Fortin, A. Schubnel, and Y Guéguen, “Elastic wave velocities and permeability evolution during compaction of sandstone”. **International Journal of Rock Mechanics**, 2005, 42, 873–889.
- A. Schubnel, J. Fortin, L. Burlini, and Y Guéguen, “Damage and elastic recovery of calcite-rich rocks deformed in the cataclastic regime”. **Journal of the Geological Society of London**, special edition on high strain zone, 2005, 203-221.
- J. Fortin, S. Stanchis, G. Dresen, and Y Guéguen, “Acoustic emission and velocities associated with the formation of compaction band in sandstones”. **Journal of Geophysical Research** , doi:10.129/2005JB003854.
- A. Schubnel, E. Walker, B. Thompson, J. Fortin, Y. Guéguen and R.P.Young “Transient creep, aseismic damage and slow failure in Carrara marble deformed across the brittle-ductile transition”. **Geophysical Research letters**, doi:10.1029/2006GL026619.
- J. Fortin, Y. Guéguen and A. Schubnel, “Consequences of pore collapse and grain crushing on ultrasonic velocities and V_p/V_s ”. **Accepted in Journal of Geophysical Research** .
- A. Schubnel, G.A. Jones, B. Thompson, J. Fortin, and R.P.Young ‘Pore pressure induced rupture and aftershocks in the laboratory’. **submitted in Geophysical Research letters**.
- J. Fortin Homogeneous and localized compaction of porous sandstone. Experimental and theoretical study. PhD thesis, University of Paris VI, 2005
- Y. Guéguen et J. Fortin, “Mécanique des roches en géologie: des processus microscopiques au comportement macroscopique” *Microstructure et Propriétés des Matériaux, Presse des Ponts et Chaussées, 2005, 39-50.*

Public communication

Seminars :

- **Université de Cergy-Pontoise**, Laboratoire de Tectonique, *février 2005*
- **Institut Français du Pétrole - IFP**, *février 2005*

- **University of Northwestern** (États Unis), Department of civil and environmental Engineering, *décembre 2004*
- **Lassonde Institute - University of Toronto** (Canada), *décembre 2004*
- **École Polytechnique**, Laboratoire de mécanique des solides, *octobre 2004*
- **GeoForschungsZentrum** de Potsdam (Allemagne), *août 2004*

Solicited talk :

- 2005 EGU Vienne, April, “Compaction bands growth from acoustic emissions” J. Fortin, S. Stanchits, G. Dresen, A. Schubnel, and Y. Guéguen (Solicited)
- 2003 European geophysical society (EGS), Nice (France), April “Mechanical compaction of Diemelstadt sandstone : from compacting shear bands to pure compaction bands” J. Fortin, P. Baud and T-f Wong (Solicited)

Conference :

- 2006 European geophysical union (EGU), Vienne, April, “Effects of pore collapse and grain crushing on ultrasonic velocities and V_p/V_s ” J. Fortin, Y. Guéguen and A. Schubnel
- 2005 Euro-conference on rock physics, Oleron, September “Compaction bands growth from acoustic emissions” J. Fortin, S. Stanchits, G. Dresen, and Y. Guéguen
- 2004 American geophysical union (AGU), San Francisco, December “Acoustic emissions, velocities and permeability evolution during formation of compaction bands in sandstone” J. Fortin, S. Stanchits, G. Dresen, A. Schubnel, and Y. Guéguen,
- 2004 American geophysical union (AGU), San Francisco, “Fracture propagation, stable sliding and slip by pore pressurizing a fault gouge analog” A. Schubnel, B. Thompson, J. Fortin, and R.P Young,
- 2004 Euro-conference on rock physics, Potsdam, September “Consequences of cataclastic flow and localized compaction on the physical properties in sandstone” J. Fortin, A. Schubnel and Y. Guéguen
- 2004 American geophysical union (AGU), spring meeting, Montreal, May “Mechanical compaction of Bleurswiller sandstone: Elastic wave velocities and permeability evolution” J. Fortin, A. Schubnel and Y. Guéguen
- 2004 European geophysical union (EGU), Nice, April “What controls V_p/V_s in granular rocks?” J. Fortin, A. Schubnel, J. Vergne and Y. Guéguen
- 2004 European geophysical union (EGU), Nice, April “Elastic wave velocities and permeability evolution during compaction of sandstone” J. Fortin, A. Schubnel, and Y. Guéguen
- 2004 European geophysical union (EGU), Nice, April “Damage and recovery of two calcic rock deformed in the cataclastic regime” A. Schubnel, J. Fortin, L. Burlini and Y. Guéguen
- 2003 American geophysical union (AGU), San Francisco, December “Mechanical compaction of Bleurswiller sandstone: Elastic wave velocities and permeability evolution” J. Fortin, A. Schubnel and Y. Guéguen
- 2003 Euro-conference on rock physics, Delft (the Netherlands), September “Elastic wave velocities and permeability evolution during compaction of sandstone” J. Fortin, A. Schubnel, and Y. Guéguen
- 2003 European geophysical society (EGS), Nice, April, “Brittle-ductile transition in calcite rich-rocks as seen by elastic wave velocities ” A. Schubnel, J. Fortin, L. Burlini and Y. Guéguen