

RODNEY David

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Experience

09/2013- **Université Claude Bernard Lyon 1**, Laboratoire ILM, Professor
06/2013- Editor at *Scientific Reports : Nature Publishing Group*.
10/2012- Associate Editor at *Acta Materialia*.
01-06/2014 **University of Chicago**, Institute for Molecular Engineering, Sabbatical
2009-2014 **Institut Universitaire de France**, Junior Member
2001- 2013 **Grenoble INP**, Laboratoire SIMAP, Associate Professor
08/2008- **Massachusetts Institute of Technology**, Department of Materials Science and
08/2009 Engineering, Sabbatical
09/2000- **CNRS/ONERA**, Lab. Etude des Microstructures (LEM), Châtillon Cedex,
09/2001 Research Assistant

Education

12/2006 **Habilitation à Diriger les Recherches**, Grenoble INP: 'On the simulation of the physics of deformation: atomic-scale plasticity and entangled materials'
12/1999 **Ph.D.**, Materials Science, Grenoble INP: 'Dislocations and elementary processes of plasticity in FCC metals: atomic-scale simulations'
07/1996 **Sc.M.**, Solid State Physics, University Paris XI Orsay.
07/1995 **Engineer diploma**, Ecole des Mines de Paris.

Teaching

- Course in Numerical Physics, Statistical Physics for Engineers, Materials Science
- 09/2004-09/2008 **Head of elective** 'Structural Materials'
- **Supervision of students: 5 PhD (defended), 6 PhD (on-going), 3 postdocs**

Research responsibilities

- **Organization of 5 national and international conferences**

- **Participation to research programs**

- 2012-2016 ANR Program MAGTWIN: ‘Twinning in Magnesium’ P.I.: L. Capolungo (Georgia Tech Lorraine). (budget: 0.7 M€)
- 2011-2015 ANR Program MECANIX: ‘Mechanics of nanostructures probed by X-ray’ P.I.: O. Thomas (IM2NP Marseilles). (budget: 0.9 M€)
- 2010-2014 ANR Program ANiM: ‘Architected NiTi Materials’ P.I.: D. Favier (3SR/UJF Grenoble). (budget: 0.7 M€)
- 2009-2012 ANR Program ATOPLAST: ‘Atomic-scale simulations of local mechanisms of plasticity in metals and alloys’, International program with the Institute of Metal Research, Shenyang China. P.I.: D. Rodney. (budget: 0.7 M€)
- 2009-2010 MIT-France Seed Fund: ‘Joint experimental/theoretical investigation of immiscible element nanocomposites’ P.I.: M. Demkowicz, MIT.
- 2008-2009 Bourse d’Etude et de Recherche à l’Etranger from the Délégation Générale pour l’Armement: ‘Atomic-scale simulation of the deformation of nanomaterials’. P.I.: D. Rodney. (budget: 40 k€)
- 2008-2012 ANR Program: ‘Size effects on the mechanical behavior of metallic glasses’ coordinated by S. Gravier (SIMAP/INPG).
- 2005-2008 Jeune Equipe CNRS ‘Mechanics of Entangled Materials’ coordinated by L. Orgéas (3S/UJF Grenoble).
- 2004-2008 Work-Package leader ‘Dislocation Dynamics in Interns’ for the European Integrated Project ‘Prediction of Irradiation Damage Effects on Reactor Components (PERFECT)’.

18 invited talks in international conferences (including Materials Research Society, The Minerals, Metals and Materials Society, International Conference on the Strength of Materials), **10 seminars** in international institutions (MIT, LLNL, LANL, Univ. Chicago, Brown Univ., ...).

56 articles in international journals including 1 Science, 1 Nature Materials, 5 Phys. Rev. Lett., articles in Phys. Rev. B, Acta Materialia, Philosophical Magazine. **5 reviews and book chapters.**

Five recent articles

1. Proville L., Rodney D., Marinica C.M. ‘Quantum effect in thermally-activated glide of dislocations’ *Nature Materials* **11** (2012) 845-849.
2. Kabir M., Lau T.T., Rodney D., Yip S., Van Vliet K.J. ‘Predicting dislocation climb and creep from explicit atomistic details’ *Physical Review Letters* **105** (2010) 095501.1-4.
3. Rodney D., Schuh C.A. ‘Distribution of Thermally Activated Plastic Events in a Flowing Glass’ *Physical Review Letters* **102** (2009) 235503.1-4.
4. Rodney D., Proville L. ‘Stress-dependent Peierls potential: Influence on kink-pair activation’ *Physical Review B* **79** (2009) 094108.1-9.
5. Miller R.E., Rodney D. ‘On the nonlocal nature of dislocation nucleation during nano-indentation’ *Journal of the Mechanics and Physics of Solids* **56** (2008) 1203-1223.