

Personal information

Surname(s) / First name(s)

Address(es)

Telephone(s)

Email(s)

Nationality(-ies)

Date of birth

Gender

Current position

Specialisation

Topics

Web page

Hirel Pierre

Université de Lille

UMR 8207, UMET, Batiment C6, 59655 Villeneuve d'Ascq, France

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pierre.hirel(at)univ-lille1.fr

French

17.11.1980

Male

Assistant Professor

Simulations in materials physics

Atomic-scale simulations, plasticity, dislocations, diffusion, complex materials

<http://pierrehirel.info/>



Competences

Simulation codes

Codes developed

Programming languages

Communication

Spoken languages

Passions

Ab initio calculations : VASP, Quantum Espresso

Atomistic simulations : LAMMPS, GULP, DL_POLY , XMD

Atomsk - <http://atomsk.univ-lille1.fr>

Fortran 90/95, notions in C, shell (Windows, Unix/Linux), web (xhtml, php/MySQL)

LaTeX, LibreOffice, Scribus, Web (Dotclear, WordPress)

French (mothertongue)

English (TOEIC: 945, April 2008)

German Beginner

Physics, computer science, cinema, piano

Formation

2008-2009

Nov. 2008

June 2007

Déc. 2006

Jan.-June 2006

June 2005

May-July 2003

Juin 2003

Self-teaching of Web languages: xhtml, css, php, W3C norms

PhD in materials physics, Univ. Poitiers. Very Honorable

Summer school on *ab initio* code SIESTA, organized by CECAM (Lyon)

Course on parallel programming with Fortran/MPI, organized by IDRIS (Poitiers)

Course of history of sciences, Univ. Poitiers

Master of Sciences and Technologies, Univ. Rennes1.

Internship in a company, computer detailer AZERTY, Rennes
Build, repair computers, install a system, set up networks...

Licence of Physique, Univ. Rennes1.

Research

- Since 1 Sept. 2016
Assistant Professor, Univ. Lille, France
◇ Simulation of defects and plastic deformation of minerals.
- 1 Nov. 2012 - 31 Aug. 2016
Post-doc, UMET, Univ. Lille, France
◇ Contribution to the RheoMan project (ERC Advanced Grant). Simulation of planar defects and dislocations in magnesium silicate perovskite MgSiO_3 in the conditions of Earth's mantle, by means of atomistic simulations (codes GULP, LAMMPS).
- 1er Feb. 2009 - 30 Sept. 2012
Post-doc, IAM-ZBS, Karlsruher Institut für Technologie, Germany
◇ Simulation of planar defects and dislocations in functional perovskite materials (SrTiO_3 , KNbO_3 ...), using *ab initio* calculations (code VASP) and atomistic methods (codes GULP, LAMMPS, DLPOLY). Collaboration with M. Mrovec, C. Elsässer (Fraunhofer-IWM, Freiburg, Germany) ; W. Sigle, P. van Aken, Max-Planck-Institut für Intelligente Systeme, Stuttgart (Germany).
- Post-doc (invited researcher), Fraunhofer-IWM, Freiburg, Germany**
◇ Study of the diffusion of Li^+ ions in new materials for Li-ion batteries. Collaboration with A. Hashibon, C. Elsässer (Fraunhofer-IWM, Germany) ; T. Eckl, U. Eisele (Robert Bosch GmbH, Germany) ; B. Kozinsky (Robert Bosch LLC, USA).
◇ Contribution to the european project RoLiCer : study of mechanical properties and the influence of dopants on fracture in Si_3N_4 . Collaboration with european Universities and companies.
- 2008
2005-2008
Co-organisation of a PhD student session in the conference C'NANO 2008
- PhD Thesis, Laboratoire Phymat, Poitiers**
«*Study by atomic-scale simulations of the formation of dislocation loops from surface ledges in a metal under stress*»
Supervisors : S. Brochard, L. Pizzagalli, P. Beauchamp
◇ Characterisation of incipient plasticity in a metallic thin film, using atomic-scale simulations (codes XMD, LAMMPS). Derivation of a model based on elastic theory of dislocations. Development of a code (Fortran) for characterizing dislocations.
- Jan.-June 2005
Research project, Master 2nd year, Laboratoire GMCM, Rennes
«*Theoretical study of electronic and optical properties of boron nitride nanotubes*»
Supervisor : B. Arnaud
◇ *Ab initio* calculations, using pseudopotentials (code ABINIT) or plane-waves (code PAW), of electronic band structures of hexagonal boron nitride (BN) and BN nanotubes, without and with excitonic corrections (GW approximation). Derivation of a tight-binding model. Simulation of optical spectra.

Teaching

- Sept.-Dec. 2016
General Physics (30h): 1st year Licence, Univ. Lille
Tutorials and practical work
Physical description of the Earth (30h): 2nd year Licence of Geophysics, Univ. Lille
Tutorials
- Jan.-June 2006
Practical work, metallurgy (30h): 1st year, IUT Poitiers
◇ Thermal treatment, mechanical tests, materials fatigue.

Reviewer

- Reviewer for peer-reviewed journals
- Computational Materials Science*
International Journal of Solids and Structures
Langmuir
Physics of the Earth and Planetary Interiors

Extra-professional activities

- 2006-2009
Contribution to the Web site Spectrosciences.com. Science and technology awareness, writing of popularisation articles.
- 2007-2008
President of the PhD student association AESM (Poitiers): organisation of a visit to the synchrotron SOLEIL, webmaster of the [Web site](#)
- 2007
Contribution to ActionPLUS, promoting science towards high-school students.
- 2006 and 2007
Contribution to the «fête de la science», Poitiers.