

Ariel Haziot

Post-doc

104 Davey Lab
University Park, PA 16802
☎ 814-863-2471
☎ 814-777-0125
✉ haziot@psu.edu

📄 www.personal.psu.edu/ae23

French, born on January the 31st, 1986



Education

- 2013 **Phd : Dislocation motion in solid helium-4**, directed by : Sébastien Balibar.
Laboratoire de Physique Statistique, l'École Normale Supérieure (Paris, France)
- 2010 **Master in Physical Science**, with Honors.
Université de Liège (Liège, Belgium)
- Engineer Diploma from the Institut Polytechnique de Grenoble**, with Honors.
PHELM (ENSPG) (Grenoble, France)
- 2003-2006 **Classes préparatoires, MP***, entering the ENSPG.
Lycée Saint Louis (Paris, France)
- 2003 **Baccalauréat scientifique**, mention Bien.
Lycée Buffon (Paris, France)

Language

French : mother tongue ; **English** : fluent ; **Spanish** : good

Research Experiences

- Sept. 2013 **The Pennsylvania State University, State College, PA, USA.**
- Dec. 2015 Post-doctoral appointment on flowing properties in solid helium and crystallization of Na-NH₃ mixture, directed by Pr. Moses Chan
- Feb. - July 2010 **Laboratoire de Physique Statistique - ENS, Paris, France.**
Undergraduate internship on Supersolidity of ⁴He, directed by Sébastien Balibar
- April - July 2008 **iThemba Labs, Sommerset West, South Africa.**
Undergraduate internship on the synthesis and the characterisation of Mn₃O₄ nanostructures and applications to batteries, directed by Malik Maaza
- July 2007 **Institut de micro-électronique, électromagnétisme et photonique, Grenoble, France.**
Internship with the CEA-LETI on the study of MOS and CMOS transistors under mechanical strain, directed by Florent Rochette

Publications

- 2015 **Search for dislocation free helium 4 crystals.**
F. Souris, A.D. Fefferman, **A. Haziot**, N. Garroum, J.R. Beamish, S. Balibar, *J. Low Temp. Phys.*, **178**, 149
- 2014 **Shear piezoelectric coefficients of PZT, LiNbO₃ PMN-PT at cryogenic T.**
S. Bukhari, M. Islam, **A. Haziot**, J.R. Beamish, *J. Phys Conf. Ser.*, **568**, 032004
- 2014 **Dependence of dislocation damping on helium-3 concentration in helium-4 crystals.**
A.D. Fefferman, F. Souris, **A. Haziot**, J.R. Beamish, S. Balibar, *J. Phys Conf. Ser.*, **568**, 012003
- 2014 **Low Frequency Elastic Measurements on Solid ⁴He in Vycor Using a TO.**
A.D. Fefferman, J.R. Beamish, **A. Haziot**, S. Balibar, *J. Low Temp. Phys.*, **176**, 1-15
- 2014 **Dislocation networks in ⁴He crystals.**
A.D. Fefferman, F. Souris, **A. Haziot**, J.R. Beamish, S. Balibar, *Phys. Rev. B*, **89**, 014105
- 2013 **Haziot et al. Reply on "Comment on Giant Plasticity of a Quantum Crystal".**
A. Haziot, X. Rojas, A.D. Fefferman, J.R. Beamish, S. Balibar, *Phys. Rev. Lett.*, **111**, 119602

- 2013 **Critical dislocation speed in helium-4 crystals (Ed. choice).**
A. Haziot, A.D. Fefferman, F. Souris, J.R. Beamish, H.J. Maris, S. Balibar, *Phys. Rev. B*, **88**, 014106
- 2013 **Dislocation densities and lengths in solid ^4He from elasticity measurements.**
A. Haziot, A.D. Fefferman, J.R. Beamish, S. Balibar, *Phys. Rev. B*, **87**, 060509(R)
- 2013 **Giant Plasticity of a Quantum Crystal (Ed. choice, Physics Viewpoint).**
A. Haziot, X. Rojas, A.D. Fefferman, J.R. Beamish, S. Balibar, *Phys. Rev. Lett.*, **110**, 035301
- 2012 **Migration of ^3He impurities along dislocation lines in ^4He single crystals.**
X. Rojas, A. Haziot, S. Balibar, *J. Phys Conf. Ser.*, **400**, 012062
- 2012 **Disorder, supersolidity, and quantum plasticity in solid helium 4.**
S. Balibar, A.D. Fefferman, A. Haziot, X. Rojas, *J. Low Temp. Phys.*, **168**, 221-234
- 2012 **Elastic effects in torsional oscillators containing solid helium (Ed. choice).**
J.R. Beamish, A.D. Fefferman, A. Haziot, X. Rojas, S. Balibar, *Phys. Rev. B*, **85**, 180501(R)
- 2012 **He-4 crystals quality and rotational response in a transparent torsional oscillator.**
A.D. Fefferman, X. Rojas, A. Haziot, S. Balibar, J. West, M.H.W. Chan *Phys. Rev. B*, **85**, 094103
- 2011 **Quantum crystals: from quantum plasticity to supersolidity.**
S. Balibar, A. Haziot, X. Rojas, *Proc. of SPIE*, **7945**, 794502
- 2010 **Anomalous softening of helium 4 crystals.**
X. Rojas, A. Haziot, V. Bapst, H.J. Maris, S. Balibar, *Phys. Rev. Lett.*, **105**, 145302
- 2009 **Piezoresistance effect of strained and unstrained fully-depleted silicon-on-insulator MOSFETs integrating a HfO₂/TiN gate stack.**
F. Rochette, M. Casse, M. Mouis, A. Haziot, T. Pioger, G. Ghibaudo, F. Boulanger, *Solid State Electr.*, **53**, 392-396

Grants and Awards

- July 2015 **Post-doctoral Research Grant, CNES.**
Closed Cycle Dilution Refrigerator for X-IFU
- May 2014 **Early-concept Grants for Exploratory Research (EAGER), NSF.**
Is Na-NH₃ a high temperature superconductor?, with Pr. Moses Chan and Pr. John Badding

Conferences - Seminars

- Sept. 2015 **Séminaire MCBT - Institut Néel, Grenoble, France.**
Talk: Is Solid Helium Supersolid?
- August 2015 **International Conference on Quantum Fluids and Solids, Niagara Falls, USA.**
Invited talk: Mass flow through 50 μm thick solid ^4He
- August 2015 **Grand Challenges in Quantum Fluid and Solid Workshop, Buffalo, USA.**
Talk: Mass flow through solid ^4He , the Penn State experiment
- March 2015 **Penn State Ice and Climate Exploration Seminar, State College, USA.**
Talk: Crystal growth, strain, dislocations and liquid flow in solid Helium
- March 2015 **APS March Meeting, San Antonio, USA.**
Talk: Mass transport in micrometer size solid ^4He
- August 2013 **International Conference on Quantum Fluids and Solids, Matsue, Japan.**
Invited talk: Critical dislocation speed in ^4He crystals
- July 2013 **Congrès Général de la Société Française de Physique, Marseille, France.**
Talk: The giant plasticity of a quantum crystal
- May 2013 **Séminaire CSNSM, Orsay, France.**
Talk: The giant plasticity of a quantum crystal
- April 2013 **Colloque Plasticité 2013, Paris, France.**
Talk: Critical dislocation speed in helium-4 crystals
- March 2013 **APS March Meeting, Baltimore, USA.**
Talk: The giant plasticity of a quantum crystal

- January 2013 **Cristaux, bulles, gouttes, surfaces, énergie...**, Paris, France.
Talk: Dislocation motion in ^4He crystals
- September 2012 **9th Conference on Cryocrystals and Quantum Crystals**, Odessa, Ukraine.
Talk: The Giant plasticity of ^4He crystals
- August 2012 **International Conference on Quantum Fluids and Solids**, Lancaster, England.
Poster: The Giant plasticity of ^4He crystals
Poster: Dislocation densities and lengths in solid ^4He
- Aout 2011 **New Frontiers of Low Temperature physics**, Daejeon, South Korea.
Poster: Migration of ^3He impurities along dislocation lines in ^4He single crystals
- August 2011 **Low Temperature Physics 26**, Beijing, China.
Poster: Migration of ^3He impurities along dislocation lines in ^4He single crystals
- June 2011 **Supersolidity Workshop 2011**, New York, USA.
Poster: Migration of ^3He impurities along dislocation lines in ^4He single crystals
- July 2010 **Supersolidity Workshop 2010**, Paris, France.
Poster: Anomalous softening of helium 4 crystals
- July 2008 **53rd Conference of the South African Institute of Physics**, Limpopo, South Africa.

Summer schools

- September 2011 **Cryocourse 2011**, Grenoble, France.
Marie Curie Advanced Cryogenics Course, organised by H. Godfrin and M. Paalanen

Other Work Experiences

- 2012-2013 **Scientific consulting for Quattrocento**, Biophysics.
ESPCI, Paris, France
- 2011-2013 **Co-organiser of the PhD student seminar of the LPS**.
Laboratoire de Physique Statistique, Paris, France
- 2010-2011 **Teacher assistant**, Physics.
Université Paris 7 Denis Diderot, Paris, France
- 2009 **Supermarket sector**, butcher, fishmonger, cashiers....
Carrefour, Monoprix, Grenoble, France

Miscellaneous

- Scientific diffusion "La Main à la pâte" : interventions in elementary schools to teach physical phenomena through little experiments.
Scientific exhibitions in elementary schools associated with MRSEC grant from the NSF.
- Sports Rock climbing, mountaineering, caving, cycling, rugby.
Volunteer climbing instructor at the State College YMCA
- Travel abroad Eastern Europe, South America (8 month), Russia, Asia, India, Japan, USA.

References

Sébastien Balibar
Senior Researcher
Laboratoire de Physique Statistique
Paris, France
balibar@lps.ens.fr
+33 (0)1 44 32 34 99

Moses Chan
Professor
The University of Pennsylvania
State College, USA
chan@phys.psu.edu
+1 814 863 2622

John Beamish
Professor
University of Alberta
Edmonton, Canada
jbeamish@ualberta.ca
+1 780 492 5692

Malik Maaza
Professor
iThemba Labs
Somerset West, South Africa
maaza@tlabs.ac.za
+27 (021) 8431149/45/46

Luc Talini
General Manager
Quattrocento
Paris, France
luc.talini@lequattrocento.com
+33 (0)1 40 79 47 83