

Jakub Železný

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Address	Cukrovarnická 10/112 , Prague 16200 Czech Republic	Email	zeleznyj@fzu.cz
		Website	fzu.cz/~zeleznyj

Education

2011 – 2016	PhD in Physics of Nanostructures Faculty of Mathematics and Physics, Charles University in Prague Supervisor: Prof. Tomáš Jungwirth
2006 – 2011	Master's degree in Mathematical Physics Faculty of Nuclear Sciences and Physical Engineering, Czech Technical University in Prague Supervisor: David Krejčířík, Ph.D.

Employment

2017 – present	Researcher , Institute of Solid State Physics, Czech Academy of Sciences 1.7.2017 – present
2016 – 2017	Postdoctoral Researcher , Max Planck Institute for Chemical Physics of Solids, Germany 1.7.2016 – 30.6.2017

Publications

ResearcherId: G-5276-2014
ORCID: 0000-0001-9471-0078

Selected publications

J. Železný, P. Wadley, K. O. A. Hoffmann, and H. Ohno, “Spin-transport, spin-torque and memory in antiferromagnetic devices”, *Nature Phys.* **14**, 220–228 (2018).

J. Železný, Y. Zhang, C. Felser, and B. Yan, “Spin-polarized current in noncollinear antiferromagnets”, *Phys. Rev. Lett.* **119**, 187204 (2017).

L. Šmejkal, J. Železný, J. Sinova, and T. Jungwirth, “Electric Control of Dirac Quasiparticles by Spin-Orbit Torque in an Antiferromagnet”, *Phys. Rev. Lett.* **118**, 106402 (2017).

J. Železný, H. Gao, A. Manchon, F. Freimuth, Y. Mokrousov, J. Zemen, J. Mašek, J. Sinova, and T. Jungwirth, “Spin-orbit torques in locally and globally noncentrosymmetric crystals: Antiferromagnets and ferromagnets”, *Phys. Rev. B* **95**, 014403 (2017).

V. Saidl, P. Němec, P. Wadley, V. Hills, R. P. Campion, V. Novák, K. W. Edmonds, F. Maccherozzi, S. S. Dhesi, B. L. Gallagher, et al., “Optical determination of the Néel vector in a CuMnAs thin-film antiferromagnet”, *Nature Photonics* **11**, 91–96 (2017).

C. Ciccarelli, L. Anderson, V. Tshitoyan, A. J. Ferguson, F. Gerhard, C. Gould, L. W. Molenkamp, J. Gayles, J. Železný, L. Šmejkal, et al., “Room-temperature spin-orbit torque in NiMnSb”, *Nature Physics* **12**, 855–860 (2016).

P. Wadley, B. Howells, J. Železný, C. Andrews, V. Hills, R. P. Campion, V. Novák, K. Olejník, F. Maccherozzi, S. S. Dhesi, et al., “Electrical switching of an antiferromagnet”, *Science* **351**, 587–590 (2016).

J. Železný, H. Gao, K. Výborný, J. Zemen, J. Mašek, A. Manchon, J. Wunderlich, J. Sinova, and T. Jungwirth, “Relativistic Néel-order fields induced by electrical current in antiferromagnets”, *Phys. Rev. Lett.* **113**, 157201 (2014).

P. Wadley, V. Novák, R. P. Campion, C. Rinaldi, X. Martí, H. Reichlová, J. Železný, J. Gazquez, M. A. Roldan, M. Varela, et al., “Tetragonal phase of epitaxial room-temperature antiferromagnet CuMnAs”, *Nature Commun.* **4**, 2322 (2013).

Awards

2016 Václav Votruba Price for the best doctoral thesis in theoretical physics

Grants

2017 Max Planck Partner Group, €20.000 per year for three years

Conferences

2018 Spins out of equilibrium: Manipulating and detecting quantum magnets, WE-Heraeus-Seminar, Germany, Invited talk

2017 CECAM workshop on ab-initio spinorbitronics, Italy, Invited talk

2017 Gordon Research Conference on Spin Dynamics in Nanostructures, Switzerland, Invited talk

2017 DPG 2017 Conference, Germany, Contributed talk

2017 APS March Meeting 2017 Conference, USA, Contributed talk

2016 SPICE Antiferromagnetic Spintronics Workshop, Germany, Contributed talk

2016 DPG 2016 Conference, Germany, Contributed talk

2015 Psi-K 2015 Conference, Spain, Contributed talk

2014 MMM 2014 Conference, USA, Contributed talk

2014 E-MRS 2014 Fall meeting, Poland, Contributed talk

Referees

Prof. Tomáš Jungwirth

Institute of Physics of the Czech Academy of Sciences

Cukrovarnická 10/112

Prague 180 00, Czech Republic

Phone: +420 220 318 457

Email: jungw@fzu.cz

Prof. Dr. Yuriy Mokrousov

Forschungszentrum Jülich

Wilhelm-Johnen-Straße

52428 Jülich, Germany

Phone: +49 2461 61-4434

Email: y.mokrousov@fz-juelich.de

Prof. Jairo Sinova

Johannes Gutenberg Universität Mainz

Staudingerweg 7

D 55128 Mainz, Germany

Phone: +49 6131 39 - 21268

Email: sinova-group@uni-mainz.de