Yaroslav Kvashnin

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Google Scholar profile

Personal information

Born: 15.08.1988 in Ekaterinburg, Russia

Expertise: Electronic structure, first-principles calculations, density functional theory (DFT), correlated electron systems, dynamical mean field theory (DMFT), exchange interactions and magnetic anisotropy, Monte Carlo (MC) simulations and Atomistic Spin Dynamics (ASD), high-pressure phase transitions, x-ray absorption spectroscopy, magneto-optics

Present employment

Dpt. of Physics and Astronomy, Uppsala University **Uppsala (SE)**
Staff researcher (permanent) *2015–now*
First-principles studies of electronic and magnetic excitations in correlated electron systems using a combination of DFT(+DMFT) and MC/ASD; theory support for time-resolved magnetic measurements; development of the full-potential LMTO code RSPt; PhD students supervision

Previous positions held

Dpt. of Physics and Astronomy, Uppsala University **Uppsala (SE)**
Post-doctoral fellow *2013–2015*
Development of the method for calculating exchange interactions in correlated materials from first principles. Studies of magnetic properties of $3d$-based alloys and oxides.

European Synchrotron Radiation Facility (ESRF) **Grenoble (FR)**
PhD student *2010–2013*
The work was done in a close collaboration with ID24 beamline at the ESRF. I did theoretical support of the high-pressure experiments on magnetic and structural properties of transition metals. I have also proposed and conducted one experiment using Mössbauer spectroscopy. I also contributed to the development of the BigDFT software and passed a 3-months training at the Institute of Physics in Prague (FZU, CZ).

European Synchrotron Radiation Facility (ESRF) **Grenoble (FR)**
Research Trainee *2009-2010*
I have done two internships (4+3 months) at the ID26 beamline. It also included short-term visits of groups of Prof. Frank Neese (MPI Mulheim-an-der-Ruhr, DE) and Prof. Frank de Groot (Utrecht University, NL).
- Subject: Theoretical interpretation of X-ray spectra of molecular complexes using ab initio methods.
- Supervisor: Dr. Pieter Glatzel

Hamburg University **Hamburg (DE)**
Visiting student *2009*
2-months research internship
- Subject: Development of the methods for computing Dzyaloshinski-Moriya interactions
- Supervisor: Prof. Dr. Alexander I. Lichtenstein

Education

Université de Grenoble **Grenoble (FR)**
Ph.D. in Condensed matter and radiation physics *2010–2013*
- PhD Thesis: "*First principles study of transition metals and their alloys under high pressure*"
- Supervisors: Prof. Dr. Partrick Bruno, Dr. Luigi Genovese

Ural Federal University **Ekaterinburg (RU)**
Engineer-physicist *2005–2010*
- Thesis: "*Calculation for parameters of anisotropic exchange interaction*"
- Supervisor: Dr. Vladimir V. Mazurenko

Scientific merits: Summary

h-index: 19 (Google Scholar) / 16 (Web of Science)

Total number of peer-reviewed publications: 57 (Complete list is available here)

High-profile publications: 1 Science (IF: 41,9), 1 Sci. Adv. (IF: 13,1), 1 Nat. Phys. (IF: 19,3), 4 Phys. Rev. Lett. (IF: 8,4), 1 An. Chem. (IF: 6,8) ; 1 Inorg. Chem. (IF: 4,8), 3 Sci. Rep. (IF: 4) and 42 more publications with IF $>$ 3.

Total number of citations (as of 31.01.2021): 1887 (Google Scholar) / 1308 (Web of Science)

Distinctions and awards

The Royal Swedish Academy of Sciences **Stockholm (SE)**
Wallmarkska priset *2019*
"For his innovative material modeling with a focus on magnetism and strong electron correlation"

Psi-k Germany **Berlin (DE)**
Runner-up prize for Volker Heine Young Investigator Award *2018*
This is an international award for young scientists working in the field of electronic structure theory. I was selected among five finalists and got the runner-up prize.

Kungliga Vetenskaps-Societeten i Uppsala **Uppsala (SE)**
Benzelius Prize *2017*
"For prominent studies of the link between electron structures and spin Hamiltonians"

Successful grant applications as the main applicant

Swedish Research Council (SE) **400 k€**
Starting Grant (Etableringsbidrag) *2020-2023*
Project: *"2D magnets for spintronic and magnonic applications"*. Individual grant to start my own group.

STINT (SE) **17 k€**
Initiation grant *2018-2019*
Project: *"Correlated materials with non-collinear ordering"*. Established a collaboration with Ural Federal University.

EuSPEC (EU) **2 k€**
Short-term scientific mission (travel grant) *2015*
Visiting M.W. Haverkort in Dresden to discuss first-principles calculations of x-ray absorption spectra

Invited talks

1. Spintec, CEA, Grenoble, FR (12.2019)
2. College seminar, Institut Laue-Langevin, Grenoble, FR (05.2018)
3. Theory seminar at Groupe de Physique des Matériaux, Université de Rouen, FR (11.2017)
4. Theory seminar at X-FEL, Hamburg, DE (11.2017)
5. Fundamentals of X-ray spectroscopy (FXS) 2017, Utrecht, NL (10.2017)
6. The International Conference on Strongly Correlated Electron Systems SCES-2017, Prague, CZ (07.2017)
7. Advanced Functional Materials 2016, Kolmården, SE (08.2016)
8. MAX IV Annual User Meeting, Lund, SE (09.2015)

Other merits/achievements

Organization of events: Organizer of a workshop "Modelling of magnetic properties of modern materials" (Uppsala, 2019), Co-organizer of a symposium at JEMS-2019 (Uppsala, 2019), Committee member for EUSpec Winter School on core-level spectroscopies (Ajdovscina, 2016), Co-organizer of the ESRF Science and Students Day (Val Cenis, 2012)

Committee member for the PhD defence: Tim Tejsner (Niels Bohr Institute, DK, 2020)

Reviewer:
- Journals: Physical Review B (APS), Physical Review Letters (APS), Scientific Reports (NPG)
- Grant proposals: Department of Energy Office of Science (US), ANR (FR)
- PhD theses: Dr. Ilya Kashin (UrFU, 2017) ; Dr. Daria Medvedeva (UrFU, 2019)

Languages: English (fluent), French (intermediate, B1), Swedish (intermediate), Russian (native)