Curriculum Vitae

Name: István Kézsmárki
Nationality, civil status: Hungarian, married, three children
Date of Birth: 29th March, 1976
Address: Experimentalphysik V, Institut für Physik
Universität Augsburg
Universitätsstr. 2, D-86135 Augsburg
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Qualifications

- Diploma of physics, Budapest Univeristy of Technology and economics (BUTE), Hungary, 1999.
- PhD in physics, BUTE, Hungary, 2003.
- Habilitation, BUTE, Hungary, 2015.

Workplaces

2017− Professor (W3) – Experimental Physics V, University of Augsburg
2016− Senior visiting scientist − Center for Emergent Matter Science, RIKEN, Japan
2016− Co-leader – Malaria Research Laboratory of BUTE and the Hungarian Academy of Sciences
2016−2017. Professor – BUTE
2014−2017. Leader − Magneto-optical Spectroscopy Research Group of the Hungarian Academy of Sci.
2014−2016. Associate professor – BUTE
2013−2014. Visiting professor – Experimental Physics V, University of Augsburg
2008−2013. Associate professor − BUTE
Senior researcher − Condensed matter research group of the Hungarian Academy of Sciences
2005−2008. Assistant professor − BUTE
Scientific coworker − Electron transport research group of the Hungarian Academy of Sciences
2003−2004. Postdoctoral research fellow − University of Tokyo

Research fields

- Magnetic and spectroscopic studies of skyrmion host compounds,
- Optical properties of multiferroic materials, optical magnetoelectric effect, directional dichroism,
- Magneto-optical spectroscopy of collective excitations in itinerant and insulating magnets,
- Optical spectroscopy of correlated electron systems,
- Magneto-optical diagnosis of malaria and biomedical applications of magnetic nanoparticles.

Fellowships and awards

- Gran Prize Innovative Interdsiciplinary Award, Swedish Chamber of Commerce, 2016
- Academic Research Group Leader, Momentum Program, Hungarian Academy of Sciences, 2014
- Physics Award, Hungarian Academy of Sciences, 2014
- Supervisor of the Year Prize, Pro Progressio Foundation for Education and Research , 2010
- Bolyai János Research Fellowship, Hungarian Academy of Sciences, 2009-2011
- Excellent Youth Scientists Award, Hungarian Academy of Sciences, 2009
- Bolyai Medal for Excellent Youth Researchers, Hungarian Academy of Sciences, 2008
- Bolyai János Research Fellowship, Hungarian Academy of Sciences, 2005-2007
- Japan Society for the Promotion of Science Postdoctoral Fellowship, 2003-2004

Funding ID (recently completed and on-going projects)

- *SPP 2137/1 – Skyrmionics: Electric Control of Skyrmions and Antiskyrmions in Multiferroic Nanostructures and Epitaxial Films*, **PI**, DFG (2018-2021), 427.000 EUR

· *TRR 80: From Electronic Correlations to Functionality*, **PI**, DFG (2018-2021), ~1.000.000 EUR
· *Static and dynamic properties of Néel-type skyrmions in multiferroic lacunar spinel compounds*, **PI**, DAAD 152294 (2017-2018), ~6.000 EUR
· *Electric control of the optical magnetoelectric effect in multiferroics*, **participant**, Hungarian Research Fund OTKA 122879 (2017-2020), ~100.000 EUR
· *Field-based evaluation of a novel magneto-optical technique to diagnose malaria*, **PI (Hungarian partner)**, National Health and Medical Research Council APP1127356 (2017-2019), ~445.000 EUR
· *Postdoctoral Research Program of the Hungarian Academy of Sciences*, **host researcher**, (2015-2017), ~30.000 EUR
· *Smart Materials for Photonics and Optical Biosensing*, **PI,** Momentum Program of the Hungarian Academy of Sciences (2014-2019), ~800.000 EUR

New optical phenomena in multiferroics and magnetic metamaterials, **PI**, Hungarian Research Fund OTKA K108918 (2013-2017), ~90.000 EUR
· *Validation and optimization of a portable magneto-optical device for malaria diagnosis*, **participant,** University of Western Australia Research Collaboration Award (2014)**,** ~12.000 EUR
· *Spin injection, detection and manipulation in nanoscale devices*, **participant**, Hungarian Research Fund NKTH CNK80991 (2010-2013), ~450.000 EUR
· *Broadband magneto-optical spectroscopy on complex magnets*, **PI**, Hungarian Research Fund OTKA PD75615 (2010-2012), ~47.000 EUR

Full list of publications: Google Scholar

Selected publications

1. P. Padmanabhan, F. Sekiguchi, R. B. Versteeg, E. Slivina, V. Tsurkan, S. Bordács, **I. Kézsmárki**, P. H. M. van Loosdrecht
Optically Driven Collective Spin Excitations and Magnetization Dynamics in the Néel-type Skyrmion Host GaV_4S_8
PHYSICAL REVIEW LETTERS **122**, 107203 (2019)

2. Y. Okamura, S. Seki, S. Bordács, Á. Butykai, V. Tsurkan, **I. Kézsmárki**, Y. Tokura
Microwave Directional Dichroism Resonant with Spin Excitations in the Polar Ferromagnet GaV_4S_8
PHYSICAL REVIEW LETTERS **122**, 057202 (2019)

3. V. Kocsis, K. Penc, T. Rõõm, U. Nagel, J. Vít, J. Romhányi, Y. Tokunaga, Y. Taguchi, Y. Tokura, **I. Kézsmárki**, and S. Bordács
Identification of Antiferromagnetic Domains Via the Optical Magnetoelectric Effect
PHYSICAL REVIEW LETTERS **121**, 057601 (2018)

4. S. Bordács, D.G. Farkas, J.S. White, R. Cubitt, L. DeBeer-Schmitt, T. Ito, **I. Kézsmárki**
Magnetic Field Control of Cycloidal Domains and Electric Polarization in Multiferroic $BiFeO_3$.
PHYSICAL REVIEW LETTERS **120**, 147203 (2018).

5. **I. Kézsmárki**, U. Nagel, S. Bordács, R.S. Fishman, J.H. Lee, Hee Taek Yi, S-W. Cheong, T. Rõõm
Optical Diode Effect at SpinWave Excitations of the RoomTemperature Multiferroic $BiFeO_3$.
PHYSICAL REVIEW LETTERS **115**, 127203 (2015).

6. **I. Kézsmárki**, S. Bordács, P. Milde, E. Neuber, L. M. Eng, J. S. White, H. M. Ronnow, C. D. Dewhurst, M. Mochizuki, K. Yanai, H. Nakamura, D. Ehlers, V. Tsurkan, and A. Loidl
Néel-type Skyrmion Lattice with Confined Orientation in the Polar Magnetic Semiconductor GaV_4S_8.
NATURE MATERIALS **14**, 1116 (2015).

7. **I Kézsmárki**, D Szaller, S Bordács, V Kocsis, Y Tokunaga, Y Taguchi, H Murakawa, Y Tokura, H Engelkamp, T Room, U Nagel
One-way Transparency of Four-coloured Spin-wave Excitations in Multiferroic Materials.
NATURE COMMUNICATIONS **5**, 3203 (2014).

8. S. Bordács, I. **Kézsmárki**, D. Szaller, L. Demkó, N. Kida, H. Murakawa, Y. Onose, R. Shimano, T. Rõõm, U. Nagel, S. Miyahara, N. Furukawa, T. Tokura
Chirality of matter shows up via spin excitations.
NATURE PHYSICS **8**, 734 (2012).

9. K. Penc, J. Romhányi, T. Rõõm, U. Nagel, Á. Antal, T. Fehér, A. Jánossy, H. Engelkamp, H. Murakawa, Y. Tokura, D. Szaller, S. Bordács, **I. Kézsmárki**
Spin-stretching modes in non-centrosymmetric magnets: spin-wave excitations in the multiferroic $Ba_2CoGe_2O_7$.
PHYSICAL REVIEW LETTERS **108**, 257203 (2012).

10. **I. Kézsmárki**, N. Kida, H. Murakawa, S. Bordács, Y. Onose, Y. Tokura
Enhanced Directional Dichroism of Terahertz Light in Resonance with Magnetic Excitations of the Multiferroic $Ba_2CoGe_2O_7$ Oxide Compound.
PHYSICAL REVIEW LETTERS **106**, 057403 (2011).