

JIŘÍ HLINKA

Year of birth 1968
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PROFESSIONAL INTERESTS / RESEARCH EXPERTISE

Functional properties of ferroelectric, multiferroic and relaxor materials, thin films, material interfaces, ferroic domains, domain walls and skyrmions, magneto-electric crystal symmetries, dielectric response of composite materials, lattice dynamics in relation with phase transitions, experiments with synchrotron and neutron scattering, infrared and Raman and hyper-Raman spectroscopy, computational physics, first-principle based methods

LEADERSHIP EXPERIENCE

since 2009 Head of the Department of Dielectrics of the Institute of Physics (Research department with 44 researchers and 11 PhD students)

EDUCATION

1986 – 1991 Faculty of Physical Engineering and Nuclear Science, Czech Technical University, Prague (Ing.)
1992 – 1995 University Paris XI – Orsay (Ph.D.)

PROFESSIONAL EXPERIENCE (including INTERNATIONAL EXPERIENCE)

1995 Researcher at **Institute of Physics** of the Czech Academy of Sciences, Prague
1997 Visiting scientist at **Institute Laue-Langevin, Grenoble** (2 months)
1997 – 1998 Postdoctoral scientists at **Nagoya University, Japan**
1998 Postdoctoral scientist at **Nijmegen University, Netherlands** (3 months)
2008 Visiting scientist at **University of Arkansas, AR, USA** (2 months)

PUBLICATION ACTIVITIES

Author of > 190 peer reviewed journal papers with > 3 900 citations as of 11/2022 (according to WoS)

h-index of 32/36 (WoS/Google Scholar), as of 11/2022

Selected 5 most important papers since 2016:

- 1 Nataf, G. F., Guennou, M., Gregg, J. M., Meier, D., **Hlinka, J.**, Salje, E. K. H., Kreisel, J. Domain-wall engineering and topological defects in ferroelectric and ferroelastic materials. *Nature Reviews Physics* 2 (2020), pp. 634–648.
DOI: 10.1038/s42254-020-0235-z; IF = 31,068
- 2 **Hlinka, J.**, Privratska, J., Ondrejko, P., Janovec, V. Symmetry Guide to Ferroaxial Transitions. *Physical Review Letters* 116 (2016), 177602.
DOI: 10.1103/PhysRevLett.116.177602; IF = 8,462
- 3 Li, Q., Stoica, V. A., Paściak, M., Zhu, Y., Yuan, Y., ... **Hlinka, J.**, Wen, H. Subterahertz collective dynamics of polar vortices. *Nature* 592 (2021), pp. 376–380.
DOI: 10.1038/s41586-021-03342-4; IF = 69,504

- 4 **Hlinka, J.**, Borodavka, F., Rafalovskyi, I., Docekalova, Z., Pokorny, J. ... Lee, J. H., Kézsmárki, I. Lattice modes and the Jahn-Teller ferroelectric transition of GaV4 S8. *Physical Review B* 94 (2016), 060104.
DOI: 10.1103/PhysRevB.94.060104; IF = 3,836
- 5 Paściak, M., Welberry, T. R., Kulda, J., Leoni, S., **Hlinka, J.** Dynamic Displacement Disorder of Cubic BaTiO₃. *Physical Review Letters* 120 (2018), 167601.
DOI: 10.1103/PhysRevLett.120.167601; IF = 9,227

APPLICATION RESULTS

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RESEARCH GRANTS

		International
2021 – 2025	Topological Solitons in Antiferroics , EU H2020 FET Open project ID 964931 (co-PI)	Yes
2021 – 2024	Semiconductor – dielectric heterostructures for photoelectrochemical hydrogen evolution , Grant of the Czech Science Foundation – Lead Agency (CEUS) 21-20110K (PI)	
2019 – 2023	Ferroelectric skyrmions , Grant of the Czech Science Foundation 19-28594X (PI)	
2017 – 2019	Multiferroicity in skyrminonic materials , Grant of the Czech Science Foundation 17-11494J (PI)	
2017 – 2019	Phase transitions in nanocomposites, multiferroics, ionic conductors and liquid crystals , Bilateral project of the Czech Academy of Sciences PAN-17-04 (PI)	
2017 – 2018	Skyrmion vortices in multiferroic materials , Bilateral project of the Czech Academy of Sciences DAAD-17-07 (PI)	
2015 – 2017	Current perspectives of ferroelectric domain interfaces , Grant of the Czech Science Foundation 15-04121S (PI)	

INVITED TALKS AT INTERNATIONAL CONFERENCES

Regular seminars at universities and research institutions and invited talks at international conferences:

- 1 Towards the ferroelectric skyrmion phases
7th International Symposium on Integrated Functionalities, 11 – 14 August 2019, Dublin, Ireland
- 2 Ferroelectric line skyrmions
Joint Conference ISAF-ICE-EMF-IWPM-PFM 2019, 14 – 19 July 2019, Lausanne, Switzerland
- 3 Domain wall engineering: concept, challenges
IMF 2017, 4-8 September 2017, San Antonio, Texas, USA
- 4 Manifestations of Bloch walls in perovskite ferroelectrics
APS March Meeting 2017, 13-17 March 2017, New Orleans, USA
- 5 Symmetry guide to ferroaxial transitions
E-MRS, 19–22 September 2016, Warsaw Poland

AWARDS and FELLOWSHIPS

2020 IEEE UFFC Ferroelectric recognition award "for his outstanding contributions to fundamental theoretical and experimental studies in ferroelectrics, relaxor ferroelectrics and multiferroics"

TEACHING ACTIVITIES AND SUPERVISION OF STUDENTS

Regular teaching **Phase transitions in solids** (1 semester per year, Master and PhD students); External member of Department of Solid state physics of Faculty of Physical Engineering and Nuclear Science of Czech Institute of Technology (FJFI CVUT), since 1996

PhD students Since 2016 supervised 6 PhD students (3 successfully defending, 2 still running)

Work in committees State doctorate committee for solid-state physics degrees of Faculty of Mathematics and Physics, Charles University (MFF UK)
Nanotechnology program for PhD students at MFF UK
Applied physics program for PhD students at FJFI CVUT

COMMISSIONS OF TRUST AND SERVING SCIENTIFIC COMMUNITY

Journal service Divisional Associate Editor for the Division of Materials Physics (DMP) of the American Physical Society for Physical Review Letters
Member of the Editorial board of International journal of Phase Transitions
Member of the Editorial board of Journal of Advanced Dielectrics
Member of the Editorial board of Ferroelectrics

Conferences Member of international advisory boards for conferences: **DyProSo, IWRF, IMF, ECAPD, TOPO**
Chairing international conferences since 2016:
XXIII Czech–Polish Seminar on Structural and ferroelectric phase transitions (CPSEM 2018), Kouty, Czech Republic, May 21-25, 2018
International Workshop on Topological Structures in Ferroic Materials (TOPO 2019), Prague, Czech Republic, June 16–20, 2019
XXIV Czech–Polish Seminar on Structural and ferroelectric phase transitions (CPSEM 2022), Harrachov, Czech Republic, May 23-27, 2022

CAS Elected member of the Academy Assembly of the Czech Academy of Sciences