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Education

Faculty of Mathematics and Physics <i>Habilitation in Theoretical Physics</i> Thesis: <i>Electronic relaxation of low-energy metastable states</i>	Charles University 2022
Faculty of Mathematics and Physics <i>Ph.D. in Theoretical Physics, Astronomy and Astrophysics</i> Thesis: <i>Energy transfers in small molecules</i>	Charles University 2002–2005
Lehrstuhl für Theoretische Chemie <i>Visiting researcher</i>	Universität Bonn Oct–Dec 2004
Faculty of Mathematics and Physics <i>MSc. in Theoretical Physics</i> Thesis: <i>Application of generalized R-matrix theory in molecular collisions</i>	Charles University 1997–2002

Academic Experience

Institute of Theoretical Physics <i>Associate Professor</i>	Faculty of Mathematics and Physics, Charles University 2022–present
Institute of Theoretical Physics <i>Assistant Professor</i>	Faculty of Mathematics and Physics, Charles University 2008–2022
Theoretische Chemie <i>Alexander von Humboldt Research Fellow</i>	Physikalisch-Chemisches Institute, Universität Heidelberg Dec 2006–Nov 2007
Institute of Theoretical Physics <i>Research Scientist</i>	Faculty of Mathematics and Physics, Charles University Jan 2006–Nov 2006

Research Projects

Multi-electron decay processes in polyatomic systems GAČR 22-22658S	Principal Investigator 2022–2024
Properties of autoionizing states in atoms, molecules and clusters GAČR 17-10866S	Principal Investigator 2017–2019
Non-radiative relaxation processes in ionized atomic and molecular systems GAČR P208-12-0521	Principal Investigator 2012–2015
Vibrational and dissociative dynamics of molecular systems in electronic continuum GAČR P208/10/1281	Team Member 2010–2014
Dynamics of non-radiative inter-atomic decay processes in clusters GAČR 202/09/0786	Principal Investigator 2009–2011

Publications

Statistics: 59 publications, 980 citations (WoS, without self-citations), h-index: 20

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Selected Publications.....

- L. Mader, C. Küstner-Wetekam, N. Kiefer *et al.*, *Neutralization of Multiply Charged Ground-State Ions by Collective Electron Transfer from an Environment*. Phys. Rev. Lett. **135**(5):053201, 2025.
- J. Wang, T. Driver, P.L. Franz, P. Kolorenč *et al.*, *Probing electronic coherence between core-level vacancies at different atomic sites*. Phys. Rev. X **15**:011008, 2025.
- C. Küstner-Wetekam, L. Mader, D. Bloß *et al.*, *Experimental quantification of site-specific efficiency of interatomic coulombic decay after inner shell ionization*. Commun. Phys. **6**(1):50, 2023.
- D. Schwickert, M. Ruberti, P. Kolorenč *et al.*, *Electronic quantum coherence in glycine molecules probed with ultrashort X-ray pulses in real time*. Sci. Adv. **8**(22):eabn6848, 2022.
- T. Barillot, O. Alexander, B. Cooper *et al.*, *Correlation-driven transient hole dynamics resolved in space and time in the isopropanol molecule*. Phys. Rev. X **11**:031048, 2021.
- P. Kolorenč and V. Averbukh, *Fano-ADC(2,2) method for electronic decay rates*. J. Chem. Phys. **152**(21):214107, 2020.
- P. Kolorenč, V. Averbukh, R. Feifel, and J. Eland, *Collective relaxation processes in atoms, molecules and clusters*. J. Phys. B **49**(8):082001, 2016.
- B. Cooper, P. Kolorenč, L.J. Frasinski, V. Averbukh, and J.P. Marangos, *Analysis of a measurement scheme for ultrafast hole dynamics by few femtosecond resolution x-ray pump-probe Auger spectroscopy*. Faraday Discuss. **171**:93–111, 2014.
- K. Gokhberg, P. Kolorenč, A.I. Kuleff, and L.S. Cederbaum, *Site- and energy-selective slow-electron production through intermolecular Coulombic decay*. Nature **505**:661, 2014.
- N. Sisourat, N.V. Kryzhevoi, P. Kolorenč, S. Scheit, T. Jahnke, and L.S. Cederbaum, *Ultralong-range energy transfer by interatomic Coulombic decay in an extreme quantum system*. Nat. Phys. **6**(7):508–511, 2010.

Teaching

Current Courses.....

Thermodynamics and Statistical Physics I (NTMF043)

Group Theory and its Applications in Physics (NTMF061)

Previously Taught.....

Thermodynamics and Statistical Physics II (Tutorials)

Physics for Mathematicians I & II

Classical Electrodynamics (Tutorials)

Applied Mathematics I–IV (Tutorials)

Other Academic Activities

Outreach: FYKOS – Correspondence Physics Competition