

**Petr Kužel**

**Year of birth** 1967  
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**PROFESSIONAL INTERESTS / RESEARCH EXPERTISE**

Ultrafast charge carrier transport in nanostructured semiconductors, in graphene and related 2D materials; Terahertz metamaterials, tunable structures and photonic crystals; Terahertz dynamics of ferroic materials, THz near-field spectroscopy.

**LEADERSHIP EXPERIENCE**

Head of Terahertz spectroscopy group (FZU)

**EDUCATION**

1994 PhD, Université Paris-XIII  
1991 M.Sc. in Physics (Solid State Physics), Université Paris-XIII  
1990 M.Sc. in Physics (Optics) Charles University, Prague

**PROFESSIONAL EXPERIENCE (including INTERNATIONAL EXPERIENCE)**

2000 – Head of THz spectroscopy group at FZU  
1999 – 2001 Invited professor at Université Paris-Nord  
1995-2000 Research position at FZU  
1994–1995 Postdoc stay at Laboratoire PMTM, Université Paris-Nord

**PUBLICATION ACTIVITIES**

Author or co-author of 141 publications (including Phys. Rev. Lett., Science Adv., Adv. Funct. Mater., Adv. Energy Mater.) with 4250 citations along WoS as of 3/2023, 1 chapter in a book (THz spectroscopy and imaging, Springer, 2013)

**H-index** 39 / 44 (WoS / GoogleScholar)

Selected 5 recent important papers:

- 1 K. Olejnik, et al., Terahertz electrical writing speed in an antiferromagnetic memory, Science Adv. 4, eaar3566 (2018), cit. 200/154 (WoS Highly Cited)
- 2 H. Hempel et al., Predicting Solar Cell Performance from Terahertz and Microwave Spectroscopy, Adv. Energy Mater. **12**, 2102776 (2022). IF=29.368
- 3 V. Pushkarev et al., Charge transport in single-crystalline GaAs nanobars: Impact of band bending revealed by terahertz spectroscopy, Adv. Funct. Mater., 32, 2107403 (2022). IF= 18.808
- 4 V. C. Paingad et al., P., Ultrafast Plasmon Thermalization in Epitaxial Graphene Probed by Time-Resolved THz Spectroscopy, Adv. Funct. Mater. **31**, 2105763 (2021). IF= 18.808
- 5 P. Kužel and H. Němec, Terahertz spectroscopy of Nanomaterials: a Close Look at Charge-Carrier Transport, Adv. Opt. Mater. **8**, 1900623 (2020). IF=9.926

#### **APPLICATION RESULTS**

N. Klein, P. Kužel, F. Kadlec, Near-field antenna, European patent No. EP1844475-A1

#### **RESEARCH GRANTS: selection of 5 recent grants**

- |           |   |
|-----------|---|
| 2023-2025 | MSCA project TI-MOF-TERA (GAP-pending); supervisor  |
| 2022-2024 | MSCA project 3D-AM-TERA (GAP-101028425); supervisor   |
| 2017-2019 | Czech Science foundation No. 17-03662S: Terahertz conductivity in semiconductor nanostructures: fundamental aspects of charge transport and confinement. Principal Investigator.      |
| 2013-2016 | Czech Science foundation No. 13-12386S: Photoconductivity and dynamics of excitations in nanostructured and disordered semiconductors on ultrafast time scale. Principal Investigator |
| 2013-2017 | FP7-PEOPLE Marie Curie Actions Initial Training Network 607521: Novel Type of Terahertz Devices – NOTEDEV. Co-investigator.   |

#### **INVITED TALKS AT INTERNATIONAL CONFERENCES: selection of 5 talks**

- 1 International Conference on Frontiers in Terahertz Technologies and Applications (FTTA-2021), New Delhi, India, December 9–11, 2021
- 2 Advanced laser technologies ALT-19 conference, Prague, September 15–20, 2019
- 3 8th International Symposium on Terahertz Nanoscience, TERANANO VIII 2017 joint with MTSA-2017, Okayama, Japan, November 19–23, 2017.
- 4 MRS Spring Meeting, Phoenix, Arizona, April 17–21, 2017.
- 5 7th International Symposium on Terahertz Nanoscience, TERANANO VII 2016, Porquerolles, France, October 2–7, 2016.

#### **AWARDS and MEMBERSHIPS**

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| 2003 | Otto Wichterle Prize of the Academy of Sciences of the Czech Republic |
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#### **TEACHING ACTIVITIES AND SUPERVISION OF STUDENTS**

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| 2008- | Photonic crystals and electromagnetic metamaterials (Charles University) |
| 2008- | Spectroscopy in the terahertz spectral range (Charles University)        |
|       | Supervision of 5 master theses, 7 PhD theses, mentoring of 6 postdocs    |