Horizon 2020
FET-OPEN

FET: **F**uture and **E**merging **T**echnologies

FET Open supports the early stages of the science and technology R&I around new ideas towards radically new future technologies.

- Radical vision
- Breakthrough technological target
- Ambitious interdisciplinary research

PETER

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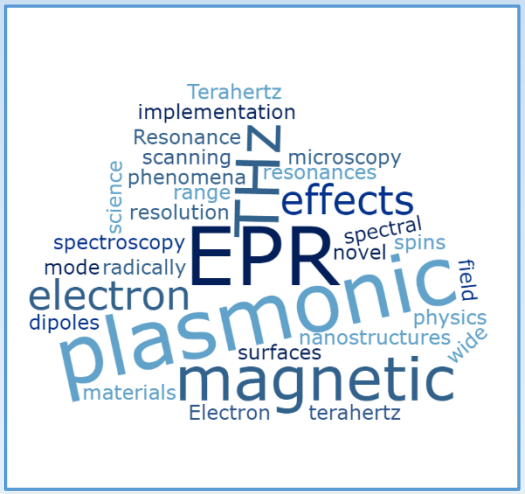
Contact us

Phone: +420778 114 038
E-mail: info@peter-instruments.eu
Web: www.peter-instruments.eu



CEITEC BUT, Purkyňova 123
60200 Brno, Czech Republic

PLASMON ENHANCED TERAHERTZ ELECTRON PARAMAGNETIC RESONANCE

Horizon 2020 FET-OPEN project

PETER

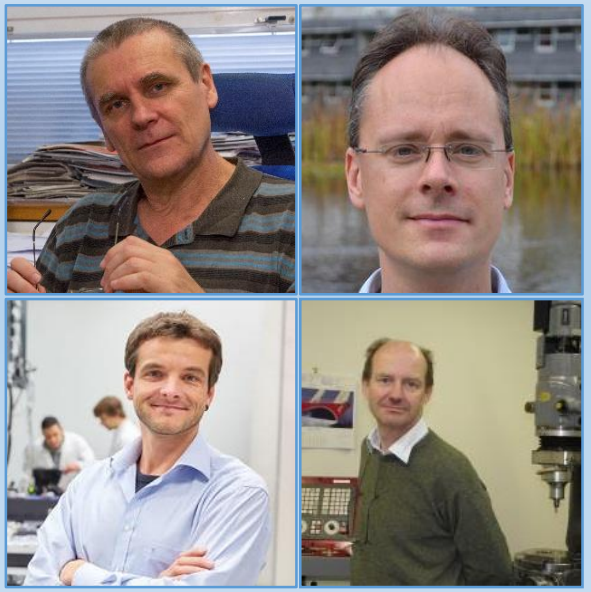
Concept and goals

PETER proposes a qualitatively new approach into the EPR area.

It builds upon the strong enhancement and subwavelength spatial resolution of magnetic sensing field provided by plasmonic effects based on collective oscillations of electrons at surfaces or in nanostructures.

In contrast to usual THz plasmon-enhanced spectroscopy of nonmagnetic materials, we build upon magnetic plasmonic resonances. ***This presents unprecedented implementation of plasmonic phenomena into EPR technique***. In particular, our project introduces for the first time plasmonic effects into THz EPR.

Plasmon-enhanced Terahertz Electron Paramagnetic Resonance spectroscopy and scanning microscopy is a radically novel method for the local analysis of paramagnetic organic and inorganic species and materials with significantly enhanced sensitivity and unprecedented spatial resolution. Specifically, this proposal promises to deliver novel hardware and infrastructure based on the ground-breaking application of THz plasmonic antennas onto surfaces (spectroscopy) and scanning probe tips (microscopy), resulting in a strong local enhancement of the magnetic sensing field.



PETER Partners

BRNO UNIVERSITY OF TECHNOLOGY

University of Stuttgart
Germany

CIC nanoGUNE
nanoscience cooperative research center

TK INSTRUMENTS

- **Tomáš Šikola**, CEITEC and Institute of Physical Engineering, Brno University of Technology (sikola@fme.vutbr.cz)
- **Joris van Slageren**, Institute of Physical Chemistry, University of Stuttgart (slageren@ipc.uni-stuttgart.de)
- **Rainer Hillenbrand**, CIC nanoGUNE (r.hillenbrand@nanogune.eu)
- **Richard Wylde**, Thomas Keating Ltd, (R.Wylde@terahertz.co.uk)