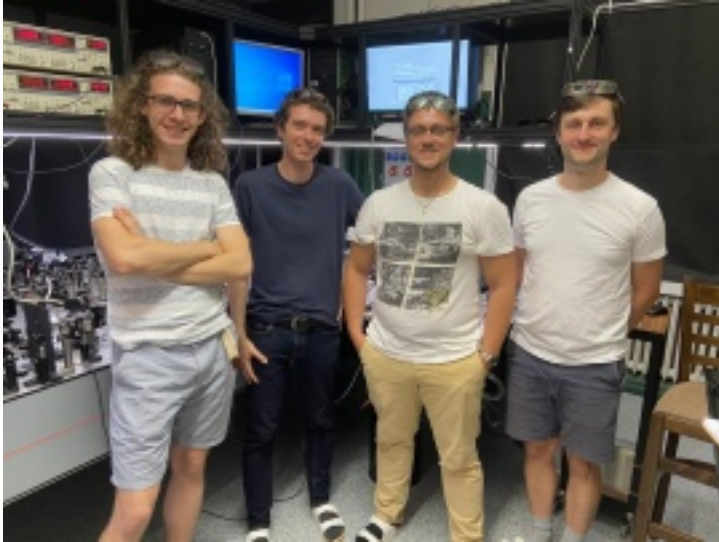


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# Terahertz Spintronics Laboratory

## (RNDr. Lukáš Nádvorník, PhD)

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The group's primary research interest lies in the domain of **ultrafast spintronic processes in magnetic materials**. The team's research is centred on **compensated magnets**, which, despite their magnetic configuration, do not generate an external magnetic field.

These structures have the potential to facilitate a substantial enhancement in the transition to magnetic memory and recording technologies that are characterised by orders of magnitude faster operation and significantly reduced energy consumption.

Their **notable achievements** include the first observation of terahertz anisotropic and spin Hall magnetoresistance, as well as the demonstration of successful generation of ultrashort magnetic wave pulses in a magnetically compensated material.

The researchers are **collaborating with European research centres** such as the Max Planck Institute in Berlin, the Walther Meißner Institute in Munich, the universities of Nottingham and Bielefeld, and Professor Tomáš Jungwirth's team at the Institute of Physics of the Czech Academy of Sciences.

Lukáš Nádvorník established and heads the Terahertz Spintronics Laboratory at the Faculty of Mathematics and Physics, Charles University. He has been researching **optical spintronics on semiconductor structures** since completing his doctoral studies. He gained experience in **time-domain terahertz spectroscopy** during a three-year postdoctoral fellowship at **Freie Universität Berlin** and the **Max Planck Institute**.