

量子物理学・ナノサイエンス第 125 回特別セミナー

Seeing is believing: Light-matter interaction in quantum materials

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日程 : 10 月 30 日 (金) 15:30 –

場所 : 南 5 号館 1 階 103B 第 2 会議室

概 要

Systems with strong electronic correlations lead to a fascinating variety of phenomena such as novel types of ferroic order, multiferroicity, superconductance, colossal magnetoresistance and much more. Well-established characterization methods are at our disposal for creating and investigating these states of matter, including, for example, pulsed-laser deposition for the former and photonic techniques for the latter. In my talk, I will focus on the interplay of quantum materials and nonlinear laser spectroscopy between terahertz and optical frequencies. Laser pulses can be used either to monitor ferroic states with spatial (domains) or temporal (dynamics) resolution. On the other hand, strong light pulses can manipulate the ordered state as such and even induce phase transitions. I will give a survey of our activities in the hope of stimulating future discussion and possibly exchange of visitors.

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