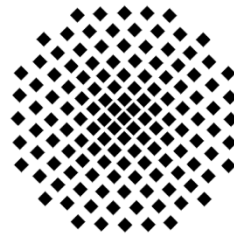


Stuttgarter Physikalisches Kolloquium

Fachbereich Physik, Universität Stuttgart
Max-Planck-Institut für Festkörperforschung
Max-Planck-Institut für Intelligente Systeme

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16:15 Uhr

V57.02

Universität Stuttgart, Pfaffenwaldring 57, 70569 Stuttgart-Vaihingen

Gastgeber: Prof. Dr. Martin Dressel, Universität Stuttgart, Telefon: 0711 - 685-64946

PostPandemic Tool for Quantum Materials and vice-versa

Kenneth Burch

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Abstract

Raman scattering, invented at the end of the last pandemic, can provide a wealth of information on the fractional, magnetic, lattice, and charge excitations at the heart of quantum materials and devices. After a brief overview of the technique and its power, I will focus on our recent discovery of the Axial Higgs Mode via Quantum interference. Here a new quasi-particle emerges from the combination of quantum geometry and strong correlations. This demonstrates the power of Raman to reveal the vector properties of a low energy mode, heralds the discovery of the first unconventional charge density wave and multi-component symmetry-breaking transition. Time permitting, I will discuss our efforts to use quantum materials in biosensing to help prevent the next pandemic.