



UNIVERSITÄT
LEIPZIG

Faculty of Physics and Earth System Sciences

Prof. Dr. I. Sodemann

Prof. Dr. K. Taute

Physics Colloquium

Tuesday, 03 June 2025 at 16:30

Prof. Dr. Surjeet Singh

IISER Pune

Mirrors, Reflections, and Facets: Crystals Through the Lens of a Physicist

From the earliest civilizations to the modern age, human progress has been profoundly shaped by the materials at our disposal—a theme often highlighted by science historians and commentators alike. But how do new materials emerge, particularly those with unique quantum properties? While serendipity plays its part, the intentional design of materials to realize specific physical phenomena—such as exotic spin Hamiltonians—drives much of modern discovery.



In this talk, I will explore a key aspect of this journey: the growth of large, high-quality single crystals of quantum materials. Beginning with a brief discussion on why single crystals are indispensable to condensed matter physics, I will delve into the fascinating process of their fabrication. Using a mirror furnace as a central example, I will highlight the intricate and meticulous techniques that enable the creation of large single crystals. These crystals provide the foundation for groundbreaking experiments, whether to probe emergent quasiparticle excitations relevant to high-energy physics or to uncover novel material properties that may shape the technologies of tomorrow.

Host: Prof. Dr. Alexander Tsirlin

Venue: Universität Leipzig, Faculty of Physics and Earth Sciences
04103 Leipzig, Linnéstraße 5, Small Lecture Hall

Everyone is welcome to a reception with coffee, drinks and cookies in the Aula following the talk.

For an up-to-date semester program, sign-up for the physics colloquium mailing list, and subscription to the digital calendars in CalDAV format, head to the colloquiums web page <https://www.physes.uni-leipzig.de/fakultaet/veranstaltungen>.

