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Physics Colloquium

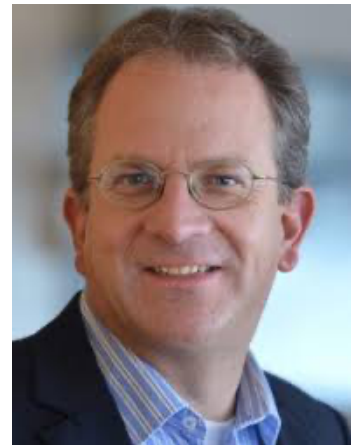
Tuesday, April 15, 2025 at 16:30

Roderich Moessner

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Microscopic properties of topological matter

Topological condensed matter exhibits properties which can be unusually robust to local perturbations. Indeed, this property may make local information very hard to access, a phenomenon that may be called topological censorship. Here, we present two instances where this tension between local and topological physics brings up very interesting physical phenomena. One is a topological magnet, in which local 'details' lead to the appearance of a dynamical fractal and sub-diffusion in a stoichiometric material [1]. The other is drawn from quantum Hall physics, where we show that the local distribution of the topologically quantised current flow is continuously tunable between qualitatively different regimes [2].



[1] J. N. Hallen, S. A. Grigera, D. A. Tennant, C. Castelnovo, R.M., Science 378, 1218 (2022).

[2] B. Doucot, D. Kovrizhin, R. M., PNAS 121 (39) e2410703121 (2024).

Venue: **small lecture hall**. Universität Leipzig, Faculty of Physics and Earth Sciences 04103 Leipzig, Linnéstraße 5.

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>

