



**UNIVERSITÄT
BIELEFELD**



Faculty of Physics



Faculty of Mathematics

Colloquium Mathematical Physics

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**Hyperuniformity as a novel type of order,
like a gas and like crystal**

A hyperuniform system can be isotropic and locally disordered, like an ideal gas, but at large scales it becomes homogeneous, like a crystal. This unique combination endows a hyperuniform material with unique physical properties. At the same time, the concept of hyperuniformity provides multifaceted challenges in mathematics. This talk presents an overview of some recent progress in both fields, among others, how to thin the ideal gas to make it hyperuniform; how to cloak the Bragg peaks of a lattice; and how to rigorously test for hyperuniformity

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