

Prof. Dr. Peter van Loock
Institut für Physik
loock@uni-mainz.de

JOHANNES GUTENBERG
UNIVERSITÄT MAINZ



Dr. Lars von der Wense
Institut für Physik
lars.vonderwense@uni-mainz.de

Seminar über Quanten-, Atom- und Neutronenphysik (QUANTUM)

June 6, 2024 at 2 p.m.
IPH Lorentzraum 05-127

Prof. Nicolò Defenu
ETH Zürich

Universal scaling in non-integer dimensions

The concept of universality has shaped our understanding of many-body physics, but is mostly limited to homogenous systems. The seminar introduces a definition of universal scaling on a non-homogeneous graph. The corresponding scaling theory is expected to depend only on a single parameter, the spectral dimension d_s , which plays the role of the relevant parameter on complex geometries. We will then focus on a concrete example, the long-range diluted graph (LRDG), which allows to tune the value of the spectral dimension continuously. By means of extensive numerical simulations, we probe the scaling exponents of a simple instance of $O(N)$ symmetric models on the LRDG showing quantitative agreement with the theoretical prediction of universal scaling in fractional dimensions.

Contact:
Andrea Graham
Institut für Physik
graham@uni-mainz.de