University of Zurich[UZH]

Faculty of Science

MAY
08
2017

Irchel Campus
Y16 G15
4:00 pm

SCHRÖDINGER

COLLOQUIUM

SERIES

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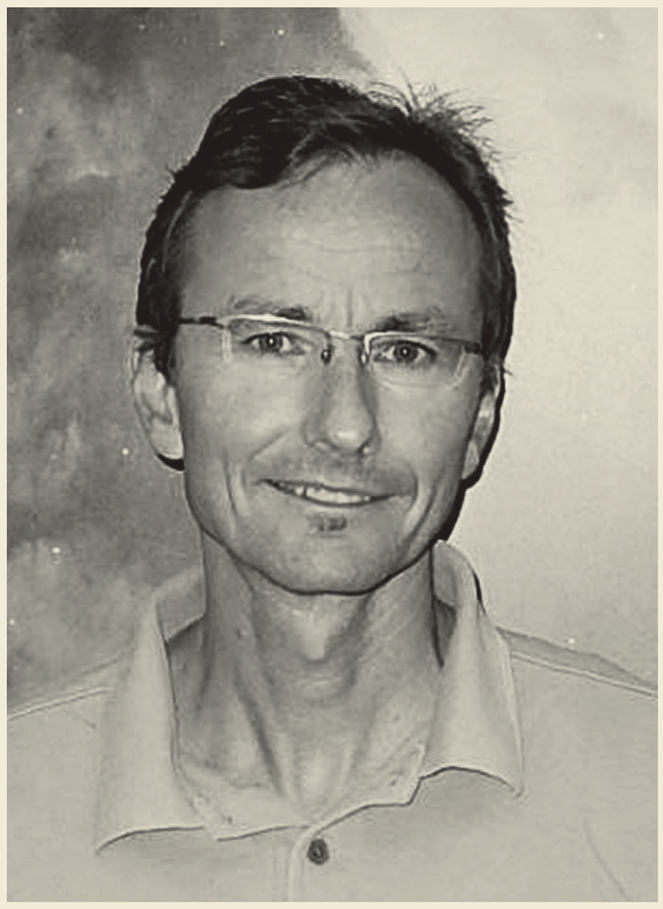
PROF. MARCEL FRANZ University of British Columbia

From solids with topology to black holes and back

An intriguing connection was made recently between a simple model of superconducting quasiparticles with random infinite range interactions and the horizons of extremal black holes in two-dimensional anti-de Sitter space. This connection furnishes a rare example of holographic duality between a solvable quantum-mechanical model and Einstein gravity. In this talk I will review some of these developments and describe a proposed physical realization of the quantum mechanical model in a solid state system. Extensive numerical simulations demonstrate that the system indeed exhibits the expected physical properties, including thermodynamic quantities and two-point as well as four-point correlators, and suggest ways in which these can be observed experimentally.



A new series of special physics colloquia in honor of Erwin Schrödinger, who was a professor at UZH from 1921 – 1927.
Lectures are intended for a broad audience from the Faculty of Science, aiming at experts and non-experts.