Institut für
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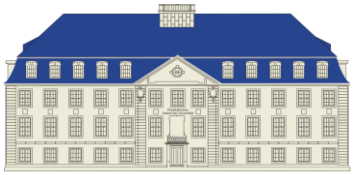

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SPECIAL COLLOQUIUM

Nir Davidson

Weizmann Institute of Science, Rehovot, Israel

Simulating spins and solving computational problems with coupled lasers

Computational problems may be solved by realizing physics systems that can simulate them. Here we present a new system of coupled lasers in a modified degenerate cavity that is used to solve difficult computational tasks. The degenerate cavity possesses <300,000 degrees of freedom (modes) that can be coupled and controlled with direct access to both the x-space and k-space components of the lasing mode. Placing constraints on these components are mapped on different computational minimization problems. Due to mode competition, the lasers select the mode with minimal loss to find the solution. We demonstrate this ability for simulating XY spin systems and finding their ground state, for phase retrieval, for imaging through scattering medium, and more.

October 20th, 14:00 h, live room 3.020, IAP, or via Zoom
https://uni-bonn.zoom.us/j/98441612025?pwd=a01SSjlkY1Q3SDFhL09JQk1qc1V6dz09
Meeting-ID: 984 4161 2025
Kenncode: 294164