Advanced Lectures in Physics in Switzerland III

Sunday, 17 May 2026 - Friday, 22 May 2026

SRS

Scientific Programme

Topological phases of matter by Carolyn Zhang (Harvard)
We will begin with symmetry-protected topological phases (SPTs) of bosons and fermions in the context of lattice models. We will then study topologically ordered phases in 2+1d with anyons, some of which can be obtained from SPTs via gauging.

Generalized and non-invertible symmetries in quantum field theory by Lea Bottini (IHES)
In this mini-course, we will explore various notions of symmetry that have been recently introduced, with an emphasis on their role in constraining phases of quantum field theories. We will start by explaining the relation between symmetries and topological defects, and the underlying categorical structure. We will then focus on one-form symmetries and their implications for confinement. Finally, we will move to non-invertible symmetries, both in lower and higher dimensions, and show some of their applications.

Tensor networks, gauge theories and all that by Torsten Zache (Innsbruck)
[Abstract coming soon]