

【系列讲座】理论物理中的广义对称性 Generalized Symmetries in Theoretical Physics

Monday, 13 February 2023 - Thursday, 16 February 2023

Scientific Programme

广义对称性与量子场论中的应用

主讲人: 王一男

1、 Higher-form symmetries

- Topological formulation of symmetries
- 't Hooft anomaly and anomaly theory
- Examples in QFT: U(1) Maxwell's theory, SU(N) gauge theory, 3d Chern-Simons theory, 6d/5d superconformal field theories
- Computations of higher-form symmetries of QFTs from string theory

2、 Higher-group symmetries and non-invertible symmetries

- Basics of higher-category theory
- 2-groups and n-groups
- 2-group gauge theories
- Examples in QFT: gauging of finite global symmetries
- Non-invertible symmetries and examples in QFT

凝聚态观点下的广义对称性

主讲人: 王晴睿

1. 't Hooft anomaly of higher-form symmetries and topological phases of matter

- 't Hooft anomalies and symmetry protected topological phases in one higher dimension
- Higher-form symmetry protected topological phases
- Cohomology classifications in lower dimensions
- Cobordism classifications

2. Higher-group symmetries and non-invertible symmetries in topological phases

- 2-group symmetry in symmetry-enriched gauge theories
- Non-invertible symmetry from gauging non-Abelian group symmetry in 1+1D
- Fusion categories as non-invertible symmetries in 1+1D
- Non-invertible symmetries in 2+1D