

Théorie conforme des champs et systèmes quantiques à plusieurs corps
21 août – 9 septembre 2022

Conformal field theory and quantum many-body physics
August 21 – September 9, 2022

Joseph Maciejko
(University of Alberta)

Introduction to Quantum Criticality (I,II,III, IV)

These lectures will introduce basic concepts surrounding quantum phase transitions and quantum critical phenomena. Topics to be covered include (1) the one-dimensional transverse-field Ising model, Kramers-Wannier duality, solution via the Jordan-Wigner transformation; (2) Landau-Ginzburg-Wilson theory, lower and upper critical dimensions, the renormalization group and the epsilon expansion; (3) fermionic quantum criticality; quantum phase transitions in Dirac systems; emergent supersymmetry.