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Strong Electromagnetic Fields and Neutron Stars

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## Effective model for quark-hadron matter in compact stars (Lecture I)

*Thursday, 4 May 2017 09:00 (1h 20m)*

Starting from model Lagrangians of the Nambu-Jona-Lasinio(NJL) type that share basic symmetries with the QCD Lagrangian we demonstrate in these lectures how to use the Path-Integral formalism in order to obtain dynamical chiral symmetry breaking and color superconductivity at the mean-field level of description and how to describe the formation and dissociation of hadronic bound states of quarks when going beyond that approximation. The status of the quest for a unified equation of state for quark-hadron matter is discussed and its importance for applications to simulations of heavy-ion collisions and the evolution of compact stars and their mergers is outlined.

**Primary author:** BLASCHKE, David (University of Wroclaw, Poland and Joint Institute for Nuclear Research (JINR), Dubna, Russia)

**Presenter:** BLASCHKE, David (University of Wroclaw, Poland and Joint Institute for Nuclear Research (JINR), Dubna, Russia)