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Phases of dense nuclear and quark matter (Part 1)

Sunday, 1 March 2026 10:00 (1 hour)

Ultra-dense matter in neutron stars is governed by the theory of the strong nuclear force, QCD. After a brief introduction to QCD and its phase diagram I will discuss the basic properties of dense nuclear and quark matter. I will then focus on the color-superconducting phases of quark matter, where quarks form Cooper pairs just like electrons in an ordinary superconductor. The lectures will be closely connected to the ones by Mark Alford, who will discuss transport properties and crystalline variants of the phases introduced here.

Presenter: SCHMITT, Andreas