Theory Section

- Astroparticle Physics
  - Jens Oluf Andersen
  - Michael Kachelrieß
  - Foteini Oikonomou (starting in May)
- Computational Physics
  - Ingve Simonsen
  - Jon Andreas Stovneng
  - Knut Rolstad

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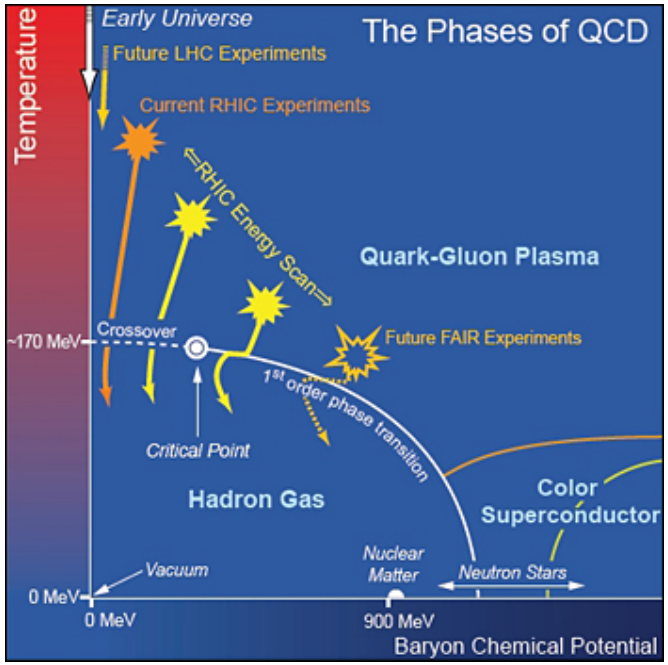
Jens Oluf Andersen: QCD in extreme conditions

- Thermodynamics at high temperature
- Phase transitions and inhomogeneous condensates
- Neutron and quark stars
- Pion condensation and effective field theory



Michael Kachelrieß

- High-energy astrophysics
  - Cosmic rays: sources, propagation, interactions
  - Magnetic fields
- New particle physics $\leftrightarrow$ astrophysics & cosmology
  - Indirect detection of dark matter
  - Neutrino masses and oscillations

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Foteini Oikonomou

- Multi-messenger astrophysics:
  - Ultra-high energy cosmic rays: sources, propagation
  - High-energy neutrinos: Leptohadronic modelling of astrophysical candidate sources, modelling of candidate source populations
  - Blazars: Origin of high energy emission, use of high-energy emission to constrain extragalactic magnetic fields

Jon Andreas Stovneng

- Condensed Matter Theory – DFT Computations:
  - Quantum mechanics for many electron systems on computers
  - Density Functional Theory
- Project examples
  - CO_2 capture with clay materials
  - Solar cell materials
- Relevant background
  - Classical mechanics, Quantum mechanics, Statistical mechanics, Solid state physics, Chemistry etc
  - TKJ4205 Molecular Modelling

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