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## How axions change stars

*Tuesday, 28 March 2023 17:00 (40 minutes)*

Lighter than expected QCD axions can get destabilized in sufficiently dense and large objects such as white dwarfs and neutron stars. Once the axion is sourced the mass of nucleons within the star is reduced, leading to a new ground state of nuclear matter. I will show that white dwarfs in this absolutely stable phase would look very different from what is observed, allowing us to set novel and strong constraints in unexplored axion parameter space. Furthermore, I will show how this new ground state changes the stellar composition of neutron stars.

**Presenter:** SPRINGMANN, Konstantin

**Session Classification:** Afternoon session-3