Core-Collapse supernovae and the impact of finite-temperature microphysics*

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Core-collapse supernovae represent one of the most energetic events in the universe and are the production site of many elements. The evolution during and after the supernova explosion is key for nucleosynthesis. In both phases, the equation of state (EOS) plays an important role determining the contraction and cooling of the neutron star and thus affecting the ejecta conditions. However, the EOS is still not fully understood and topic of current research in nuclear physics as well as in astrophysics.
In this work, we investigate the influence of the EOS in core-collapse supernovae simulations. The impact of finite-temperature microphysics on the explosion phase and the contraction behaviour of the proto-neutron star is analyzed.

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