

# Strange Hadronic Matter and Kaon Condensation

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In this contribution we address the question whether kaon condensation could occur in strongly interacting self-bound strange hadronic matter. In our comprehensive dynamical relativistic mean-field (RMF) calculations of nuclear and hypernuclear systems containing several antikaons we found saturation of  $\bar{K}$  separation energy as well as the associated nuclear and  $\bar{K}$  density distributions upon increasing the number of  $\bar{K}$  mesons [1, 2]. The saturation pattern was found to be a universal feature of these multi-strangeness configurations. It is present across the entire periodic table and independent of the applied RMF model. Since in all cases the  $\bar{K}$  separation energy does not exceed 200 MeV, which is considerably short of the threshold value  $\approx 320$  MeV required for the onset of kaon condensation, we conclude that  $\bar{K}$  mesons do not provide the physical “strangeness” degrees of freedom for self-bound strange hadronic matter.

[1] D. Gazda, E. Friedman, A. Gal, J. Mareš, Phys. Rev. C 77 (2008) 045206.

[2] D. Gazda, E. Friedman, A. Gal, J. Mareš, Phys. Rev. C 80 (2009) 035205.

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