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Clusters in nuclear matter

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Thermodynamical properties and the composition of nuclear matter are strongly affected by correlations, in particular the formation of clusters. At very low densities and finite temperatures the system can be described by the virial equation of state that is based on experimental data. With increasing density medium effects become important that modify the properties of the clusters. At densities around and above nuclear saturation density clusters are dissolved and mean-field concepts can be used to describe the matter. In this contribution a generalized relativistic mean-field model is presented that allows a smooth interpolation between the low-density phase dominated by few-body correlations and the homogeneous phase above saturation.

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