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Merging the thermodynamics of heavy-ion collisions and astrophysics

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In this talk I will present the recent progress in development of a thermodynamical model, which would be applicable for both astrophysics and heavy-ion collisions. To motivate this endeavor, the common aspects of both fields will be covered, as well as crucial details of each, which need to be taken into account within the development of a unified model. Main approach is a cluster-virial expansion which incorporates hadronic liquid and quark-gluon plasma. Relativistic density functionals are used to model interactions of the particles with their medium. This method has already shown success in astrophysical applications and is now applied to vanishing baryon densities. The prospects of the final model, which can describe the thermodynamics of astrophysics and heavy-ion collisions (at zero and finite temperature), as well as include the basis for future studies (e.g., of the possibility of a critical endpoint), will be outlined.

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