

**THE PHQMD MODEL FOR THE FORMATION  
OF NUCLEAR CLUSTERS AND HYPERNUCLEI  
IN HEAVY-ION COLLISIONS**

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Modeling of the process of the formation of nuclear clusters in hot nuclear matter is a challenging task. The PHQMD (Parton-Hadron-Quantum-Molecular-Dynamics) model is a transport approach incorporating explicit partonic degrees-of-freedom (quarks and gluons), an equation-of-state from lattice QCD, as well as dynamical hadronization and hadronic elastic and inelastic collisions in the final reaction phase. An  $n$ -body quantum molecular dynamic type propagation of hadrons which allows choosing of the equation of state with different compression modulus was recently complemented with a number of routines for the formation of nuclear clusters and hypernuclei in the reaction final state.

We present first results from PHQMD on the study of the production rates of strange hadrons, nuclear clusters and hypernuclei in heavy-ion collisions at NICA energies. In particular, sensitivity of hadronic anisotropic flow harmonics on the “hard” and “soft” equation of state within the PHQMD model was investigated.