

## Workshop for young scientists with research interests focused on physics at FAIR



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### (Anti-)strangeness in heavy ion collisions

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We study the production of (anti-) strange and multi-strange hadrons in heavy ion collisions from FAIR/NICA to RHIC energies within the Parton-Hadron-String Dynamics (PHSD) microscopic transport approach, which contains the partonic and hadronic dynamics. We observed traces from the QGP by looking at a variety of 'bulk' observables like the excitation functions of particle yields,  $p_T$ - and rapidity distributions, centrality dependencies of yields, etc. By showing the channel decomposition for the strangeness production we demonstrate how with increasing energy the production by the QGP dominates the hadronic production. However, the production of a deconfined state of matter does not explain the strangeness enhancement seen experimentally at FAIR/NICA energies, which could be attributed to the approximate restoration of chiral symmetry in the hadronic phase. We show the corresponding PHSD results for strange mesons and baryons including the phase transition and chiral symmetry restoration.

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