Abstract:

I will discuss why J-PARC and NICA are promising places for studying high density hadron/quark state through heavy ion-collisions. Lattice group at FEFU (Far Eastern Federal University) has developed a code for the finite density QCD based on the canonical approach. This might be a break through for beating the sign problem, which is a famous obstacle in the finite density QCD simulations.

Together with this first principle QCD simulations, outcomes from J-PARC, NICA (and probably CBM@GSI) will open a new age of finite density baryonic states.