

# Features of Quarkyonic Matter

*Tuesday, October 8, 2024 9:00 AM (50 minutes)*

I outline the origin of the hypothesis for Quarkyonic Matter and discuss the generic characteristics of such matter. A specific IdylliQ model is presented corresponding to an ideal gas of nucleons with a constraint that the quark phase space density does not exceed 1, that is the maximal occupancy for quark states. This model is dual between quarks and nucleons, and in the Quarkyonic phase nucleons largely sit on a Fermi surface surrounded by a filled Fermi sea of quarks. The possibility that the transition density to Quarkyonic matter might be as low as nuclear matter density is discussed.

**Presenter:** MCLERRAN, Larry (Institute for Nuclear Theory, University of Washington)