



Physics Division Seminar

Omar Benhar

INFN and Sapienza University

Scale Dependence of Nucleon-Nucleon Interactions

Host: Alessandro Lovato

Monday, April 27, 2020 – 10:30 AM - Via BlueJeans

Please join us for the next Physics Division Seminar via BlueJeans. On Monday (4/27/20) slightly before 10:30 AM go to the meeting URL: <https://bluejeans.com/494035704>

Once logged in, you'll be given the option to use your computer for audio, or your phone for audio. Follow the instructions.

Abstract: The scale-dependence of nucleon-nucleon interactions, which in recent years has been extensively analysed in the context of chiral effective field theory (χ EFT), is, in fact, inherent in any potential models constrained by a fit to scattering data. A comparison to the available empirical information extracted from measured electro-disintegration cross sections shows that, while the phenomenological Argonne v_{18} potential provides an accurate description of the data, local potentials obtained from χ EFT fail at the scale relevant to the high-momentum tail. The emerging picture suggests that χ EFT, based on a low-momentum expansion, is not adequate to describe nucleon-nucleon interactions at centre-of-mass energies exceeding ~ 100 MeV. The implications for the application of χ EFT to studies of dense nuclear matter will be discussed.