PERUGIA 2023 APS ADVANCED PHYSICS SEMINARS

Giovedì 19 ottobre

ore 15:00 - aula B

At the heart of the matter

Egle Tomasi-Gustafsson

The proton is the most common particle in nature. However mysteries associated to its size, composition, and internal structure still subsist. A new view of the charge and magnetic distributions inside the proton (in terms of quantities called "form factors") is emerging since the beginning of this millenium, due to the enormous progress in particle accelerators, detectors and polarimetry. In particular, elastic electron proton scattering and electron-positron annihilation into a proton-antiproton pair give a description of the proton in the four dimensions, space and time. We will describe and interprete the recent results in terms of a model that calls for a dynamical picture of the proton, where different gluon and quark states may coexist: a three-quark state, a quark-diquark configuration as well as an inner region of quantum vacuum.
A short video will be shown to illustrate these findings.