Contribution ID: **137** Type: **Oral**

Gravitational and Electromagnetic Form Factors of Pion, Kaon, and Nucleon

This presentation offers a unified set of results for the elastic electromagnetic and gravitational form factors of the pion, kaon, and nucleon, using continuum Schwinger function methods. A key feature of the study is the consistent treatment of dressed graviton–quark interactions, allowing seamless analysis across mesons and baryons. We find that the mass radii of pions and kaons are smaller than their charge radii, in line with existing empirical insights, and that their internal pressures rival those inside neutron stars. Extending the approach to nucleons, we show that the pion ' s near-core pressure is about twice that of the proton, with both exceeding neutron star values. A detailed decomposition of the nucleon ' s gravitational form factors reveals a constant glue-to-quark ratio, independent of momentum transfer. We also establish a clear ordering of proton radii: mechanical < mass-energy < charge. These results provide timely guidance for future experiments probing the inner structure of hadrons and the dynamics of QCD.

Primary authors: ROBERTS, Craig (Nanjing University); 丁, 明慧 (Nanjing University)

Presenter: 丁, 明慧 (Nanjing University)

Session Classification: Parallel

Track Classification: Three-dimensional structure of the nucleon: generalized parton distributions and form factors