38th INTERNATIONAL CONFERENCE
ON HIGH ENERGY PHYSICS
AUGUST 3 - 10, 2016
CHICAGO

Contribution ID: **344** Type: **Oral Presentation**

Strange quarks in the nucleon from lattice QCD (15' + 5')

Saturday, 6 August 2016 12:40 (20 minutes)

Since strange quark contributions to nucleon observables must arise entirely through interactions with the vacuum, their sign and magnitude provide key information regarding the nonperturbative structure of the nucleon. For this reason there have been extensive experimental and theory efforts directed at measuring such quantities over the last decade. I will discuss the significant progress made in precise quantitative determinations of strange nucleon properties through numerical simulations of QCD on a discrete space-time lattice. This work is important in the context of physics issues as diverse as the experimental detection of dark matter particles, precision tests of the Standard Model, and determining the distribution of the proton's spin among its constituents. I will focus in particular on recent lattice QCD results which have set new benchmarks for studies of strange electromagnetic form factors in parity-violating electron scattering experiments and on results for the strange nucleon sigma terms leading to new levels of precision in the interpretation of dark matter searches.

Primary author: SHANAHAN, Phiala (Massachusetts Institute of Technology)

Presenter: SHANAHAN, Phiala (Massachusetts Institute of Technology)

Session Classification: Strong Interactions and Hadron Physics

Track Classification: Strong Interactions and Hadron Physics