Contribution ID: **64** Type: **Oral**

Nuclear Physics from coherent neutrino-nucleus scattering data

Tuesday, 3 July 2018 14:30 (30 minutes)

The coherent neutrino scattering with nuclei provides a novel way to measure the distribution of neutrons in nuclei. This interaction has been theoretically predicted more than 40 years ago, but the difficulty of measuring the very small nuclear recoil made possible its experimental observation only in 2017 by the COHERENT experiment.

Using the COHERENT data, we are able to determine for the first time the average radius of the neutron distributions of the Caesium and Iodine nuclei, which turns out to be of about 5.5 millionths of a nanometer. It was also possible to evaluate the so called "neutron skin", which is the difference between the radii of the neutron and proton distributions.

In the present talk, the measurement of the neutron radius and the neutron skin from COHERENT data will be presented, and the implications in nuclear physics, astrophysics and the cosmology will be elaborated.

Primary author: Dr LI, Yufeng (Institute of High Energy Physics)

Presenter: Dr LI, Yufeng (Institute of High Energy Physics)

Session Classification: Parallel Session 1-7