Contribution ID: **36** Type: **Talk**

Tests of discrete symmetries with the neutral kaon system at the KLOE and KLOE-2 experiments

Wednesday, 13 June 2018 12:00 (20 minutes)

The KLOE-2 experiment continues and extends the program of its predecessor KLOE in the field of discrete symmetry tests with the K meson system, among other studies which comprise light meson spectroscopy, dark matter searches and $\gamma\gamma$ physics. Together, KLOE and KLOE-2 have recorded the largest sample (almost 8 fb^{-1}) of e+e- collisions at the energy equal to ϕ meson mass, amounting to 2.4×10^{10} of produced ϕ mesons.

The talk will report on the latest results and ongoing analyses of KLOE and KLOE-2 concerning discrete symmetry tests and measurements of symmetry-violating observables. A measurement of the CPT violation sensitive asymmetry in semileptonic decays of K_S with 1.7 fb^{-1} of KLOE data will be presented, which improves the sensitivity w.r.t. previous measurements about twice. Moreover, status of direct tests of T and CPT in transitions of neutral kaons performed with the $\phi \to K_S K_L \to \pi e\nu, 3\pi^0(2\pi^0)$ processes will be reported, followed by the search of the CP-violating decay $K_S \to 3\pi^0$ using the recently acquired data of KLOE-2.

Primary author: Mr GAJOS, Aleksander (Jagiellonian University in Krakow, Poland)

Presenter: Mr GAJOS, Aleksander (Jagiellonian University in Krakow, Poland)

Session Classification: CPT