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Type: **Non-Invited Talk**

Test of discrete symmetries in transitions with entangled neutral kaons at KLOE-2

Tuesday 27 November 2018 16:00 (25 minutes)

KLOE-2 physics program is mainly focused on K_S , η and η' meson rare decays as well as on kaon interferometry, fundamental symmetry tests and physics beyond the Standard Model, including searches for new exotic particles that could constitute the dark matter. The entanglement in the neutral kaon pairs produced at the DAΦNE ϕ -factory is a unique tool to test discrete symmetries and quantum coherence at the utmost sensitivity, in particular strongly motivating the experimental searches of possible CPT violating effects, which would unambiguously signal New Physics.

Preliminary results on the test of Time reversal and CPT in transitions in $\phi \rightarrow K_S K_L \rightarrow \pi e \nu$, $3\pi 0$ and $\pi e \nu$, 2π decays will be presented.

Content of the contribution

Experiment

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Session Classification: Emergence of symmetries from entanglement

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