

Physics with the KLOE2 experiment at the phi factory

Thursday, July 16, 2009 9:20 AM (20 minutes)

We report on the most debated issues which experimentation at the phi factory can really shed light on with a short-term program of measurements.

Recent, very promising improvements in the lattice-QCD calculations call for new precision measurements in the Kaon sector to obtain more stringent results on CKM Unitarity and Lepton Flavour Universality.

Neutral Kaon Interferometry can probe Discrete Symmetries, but also Quantum Mechanics at the Planck scale. Current limits obtained by KLOE can be overcome by both, the increase in statistics, and the upgrade of the tracking system with an inner GEM chamber for improving vertex resolution near the beam interaction region.

One possible solution to the Dark Mass problem, allowing also to interpret the positron excess measured by the satellite Payload experiment PAMELA, suggests a “dark” sector that can really be constrained by the experiments at the Kaon and B-Factories.

Low energy QCD phenomenology can receive an important contribution from the new measurements of radiative and non-leptonic decays of K, eta and eta' mesons.

Finally, important results on the physics in the continuum can be achieved by new measurements of the hadronic cross section and the study of gamma-gamma processes. Improvements on hadronic cross section at low energy are needed to understand the 3-sigma effect on $(g-2)_{\mu}$ and for precision determination of α_{em} at the TeV scale while the analysis of the gamma-gamma sample impacts scalar spectroscopy and the underlying physics but also the light-by-light hadronic contribution to $(g-2)_{\mu}$.

Primary authors: Dr BLOISE, Caterina (LNF-INFN, Frascati, Italy); Dr GAUZZI, Paolo (University of Rome “La Sapienza”)

Presenter: Dr GAUZZI, Paolo (University of Rome “La Sapienza”)

Session Classification: VI. QCD in Hadronic Physics

Track Classification: QCD in hadronic physics