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The KLOE-2 experiment at DAPHNE

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The KLOE-2 experiment at the INFN Laboratori Nazionali di Frascati has concluded the data-taking at the e+e- DAPHNE phi-factory with more than 5 fb-1 of integrated luminosity collected. Record performance in terms of 2.4 x 10ˆ32 cm-2s-1 peak luminosity and 14 pb-1 maximum daily integrated luminosity were achieved with the crab waist scheme of beam collisions.

KLOE-2 represents the continuation of KLOE with a new physics program mainly focused on the study of K short, η rare and decays as well as on kaon interferometry, test of discrete symmetries, and search for physics beyond the Standard Model. The collected data sample will allow to perform CPT symmetry and quantum coherence tests using entangled neutral kaons with an unprecedented precision, studies of γγ-physics processes, and the search for signals of a hidden dark-matter sector, among the fields to be addressed.

The general purpose KLOE detector, composed by one of the biggest Drift Chamber ever built sur- rounded by a lead-scintillating fiber Electromagnetic Calorimeter among the best ones for energy and timing performance at low energies, undergone several upgrades including State-of-The-art cylindrical GEM detector: the Inner Tracker. To improve its vertex reconstruction capabilities near the interaction region, KLOE-2 is the first high-energy experiment using the GEM technology with a cylindrical geometry, a novel idea that was developed at LNF exploiting the kapton properties to build a transparent and compact tracking system. To γγ-physics the detector has been upgraded with two pairs of electron-positron taggers: the Low Energy Tagger (LET), inside the KLOE apparatus, and the High Energy Tagger (HET) along the beam lines outside the KLOE detector.

An overview of the KLOE-2 experiment will be given including present status and achievements together with physics plans.

Content of the contribution

Experiment

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Session Classification: T, C, P, CP and CPT symmetries

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