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Hadron Physics at KLOE and KLOE-2

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The KLOE experiment has collected 2.5 fb-1 at the peak of the phi resonance at the e+e- collider DAPHNE in Frascati. A new beam crossing scheme, allowing for a reduced beam size and increased luminosity, is currently operating at DAPHNE. The upgraded detector, named KLOE-2, has already collected 2.0 fb-1 in these new operating conditions, aiming to reach at least 5 fb-1 in the next two years. The physics program is mainly focused on the study of low energy hadron decays as well as on neutral kaon interferometry, test of discrete symmetries, and search for physics beyond the Standard Model. The analysis of KLOE data is still in progress. The large data sample of light meson available provides precision mesurements on decay dynamics, transition from factors and searches of new physics. Recent results on V->Pgamma*Dalitz decays and eta->pi+pi-pi0 dynamics will be presented. The analysis of the phi->eta e+e- channel provides the most precise measurement of the transition form factor (TFF), while for the phi->pi0 e+e- decay the TFF has been measured for the first time. The Dalitz plot density of the eta->3pi decay is sensitive to all cubic terms of the polynomial expansion in the normalized dimensionless variables X and Y, providing an improvement of a factor two on the statistical uncertainty of all parameters with respect to earlier experiments and smaller systematic uncertainties. Perspectives on hadron phisics with KLOE-2 data will be also presented. In particular, the new four stations installed to tag electrons and positrons from the reaction e+e- -> e+e-gamma*gamma-> e+e-X, will give the opportunity to investigate gamma-gamma physics at the phi resonance. Single pseudoscalar production will improve the determination of the two-photon decay widths of these mesons. An accuracy of 1% for the pi0 is reachable with 5 fb-1, matching the current theory precision. With the same amount of data, the measurement of the pi0 -> gamma gamma* TFF in the space-like region with 5-6% accuracy could be reached in a region not yet exploited of the low momentum transfer.

Presenter: BLOISE, Caterina (INFN)

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