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KLOE measurement of the $\sigma(e^+e^- \rightarrow \pi^+\pi^-(\gamma))$ with Initial State Radiation and its contribution to the muon (g-2). Future prospects with KLOE-2

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The KLOE experiment at the ϕ factory DAΦNE in Frascati (near Rome) is the first to have employed Initial State Radiation (ISR) to precisely determine the $e^+e^- \rightarrow \pi^+\pi^-(\gamma)$ cross section below 1 GeV. Such a measurement is particularly important to test the Standard Model calculation for the (g-2) of the muon, where a long standing 3σ discrepancy is observed.

In 2005 and 2008 KLOE has published a measurement of the $\pi^+\pi^-$ cross section with the photon emitted at small angle, and a new independent measurement with the photon emitted at large angle using data taken in 2006 at a collision energy of 1 GeV (20 MeV below the ϕ -peak) has been published this year.

While these measurements were normalized to the DAΦNE luminosity using large angle Bhabha scattering, a new analysis has been performed which derives the pion form factor directly from the $\pi^+\pi^-\gamma(\gamma)/\mu^+\mu^-\gamma(\gamma)$ ratio.

We present the KLOE results and discuss future prospects for these measurements as well as their impact on the evaluation of the hadronic contribution to the muon anomaly.

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