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U-Boson search in $e^+e^- \rightarrow \mu^+\mu^-(\gamma)$ process at KLOE

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Following recent puzzling astrophysical results and recent theoretical studies, a search for a relatively low mass (1 GeV) new vector boson (the U), weakly coupled with SM particles and decaying into leptons pairs, by using the Initial State Radiation (ISR) process, was performed at KLOE.

The KLOE experiment at the ϕ - factory DAΦNE is the first to have exploited ISR to precisely determine cross section process like $e^+e^- \rightarrow \pi^+\pi^-(\gamma)$ and $e^+e^- \rightarrow \mu^+\mu^-(\gamma)$ cross section below 1 GeV.

We use 220 pb^{-1} of data to search for light vector boson in the $e^+e^- \rightarrow \mu^+\mu^-(\gamma)$ channel. No evidence was found and a preliminary upper limit in the mass range 600 - 1000 MeV was extracted.

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