

## Dark Photon search with PADME at LNF

*Sunday, 3 September 2017 15:15 (25 minutes)*

Dark Matter elusiveness could be explained by speculating that it lives in a separate sector with respect to the Standard Model (SM) and that interacts with it only by means of messengers. The simplest model foresees just one messenger: a, possibly massive, vector boson given by a new U(1) symmetry. This mediator can faintly mix with the photon and, hence, interact with SM charged particles, seeing an effective charge equal to  $\varepsilon e$ , with  $e$  SM charge.

The PADME experiment, hosted at Laboratori Nazionali di Frascati, is designed to search for such kind of particle, looking for its production in  $e^+ e^-$  annihilations. Exploiting the DAΦNE linac, the collaboration aims to collect  $10^{13}$  positrons on target by the end of 2018, reaching a sensitivity of  $\sim 10^{-3}$  for masses up to 23.7 MeV.

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**Session Classification:** Dark matter and cosmology