PADME

Lecce group meeting

G. Chiodini

5-April-2016

INFN Lecce

Sommario

- Agenda di oggi
- NA64
- Z-axis conductive tape
- Metalized sensor

Agenda di oggi

Tuesday, 5 April 2016

11:00 - 11:10	Introduzione ai lavori *10'*	Speaker: Gabriele Chiodini (LE)
11:10 - 11:25	Grafitizzazione laser *15'*	Speaker: Maurizio Martino (LE)
11:25 - 11:40	Misure IV e wire bonding *15'*	Speaker: Prof. Giuseppe Maruccio
11:40 - 11:55	Realizzazione PCB board dummy e passive *15'*	Speaker: Roberto Assiro (LE)
11:55 - 12:05	DIscussione elettronica on-board *10'*	Speaker: Pietro Creti (LE)
12:05 - 12:20	Meccanica del target *15'*	Speaker: Giuseppe Fiore (LE)
12:20 - 12:30	Setup sorgente alfa *10'*	Speaker: Alessandro Miccoli (LE)
12:30 - 12:45	Simulazione risposta diamante *15'*	Speaker: Stefania Spagnolo (LE)
12:45 - 13:00	Z-axis tape e Sensore metallizzato *15'*	Speaker: Gabriele Chiodini (LE)

Proposta: Martedi' alle 11.00 della prima settimana di ogni mese è programmato un PADME Lecce group meeting

Nuova proposta al CERN: NA64

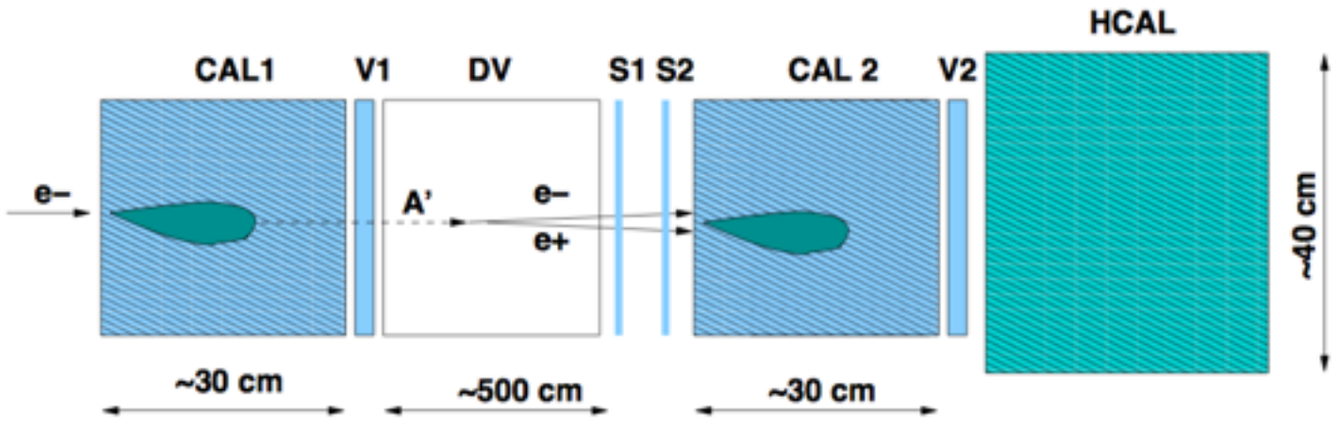

FIG. 1: Schematic illustration of the setup to search for dark photons in a light-shining-through-a-wall-type experiment at high energies. The incident electron energy absorption in the calorimeter CAL1 is accompanied by the emission of bremsstrahlung A's in the reaction $eZ \to eZA'$ of electrons scattering on nuclei, due to the $\gamma - A'$ mixing, as shown in Fig. 2. The part of the primary beam energy is deposited in the CAL1, while the rest of the total energy is transmitted by the A' through the CAL1 wall. The A' penetrates the CAL1 and veto V1 without interactions and decays in flight in the DV into a narrow e^+e^- pair, which generates the second electromagnetic shower in the CAL2 resulting in the two-shower signature in the detector. The sum of energies deposited in the CAL1+CAL2 is equal to the primary beam energy.

Proposal for an Experiment to Search for Light Dark Matter at the SPS

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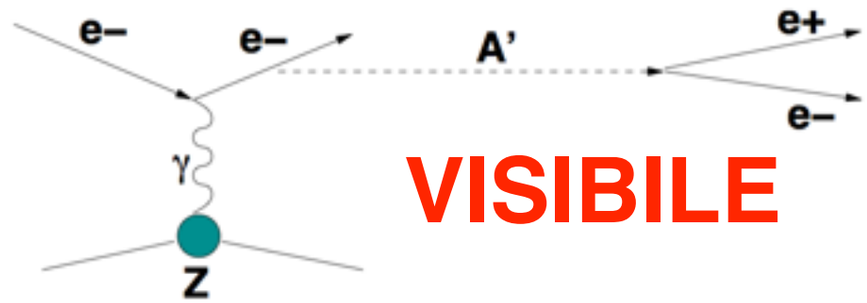

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FIG. 2: Diagram illustrating the massive A' production in the reaction $e^-Z \to e^-ZA'$ of electrons scattering off a nuclei (A, Z) with the subsequent A' decay into an e^+e^- pair.

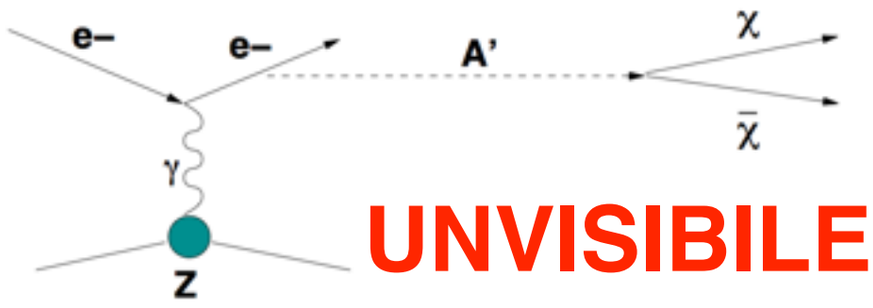

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FIG. 5: Diagram illustrating the massive A' production in the reaction $e^-Z \to e^-ZA'$ of electrons scattering off a nuclei (A,Z) with the subsequent A' decay into a $\chi\overline{\chi}$ pair.

Programma di NA64

Beam requests:

2016: 2 weeks of test beam to finalize the set-up (July) + 2.5-3 weeks of run in Autumn
This allows to collect o(10^{10}) electrons and cover the whole g-2 region
2017-2018: o(3 months) of data taking for collecting o(10^{11}) electrons and push the limit on epsilon down to the 10^{-4} level.

Need MBPL magnet with 140 mm gap.

The Committee **has received with interest** the addendum to the P348 proposal, outlining the P348 physics runs in 2016 and 2017. The SPSC **appreciates** the responsiveness of the P348 collaboration to the Committee's requests and **recognises** the physics potential of the proposed run. The Committee **recommends** that P348 be approved as an SPS experiment.
The SPSC **also recommends** approval of the P348 beam request in 2016, i.e. two weeks of test run and 4 weeks of physics run, to investigate the region of the invisibly decaying dark-photon parameter space that would explain the (g-2)_mu anomaly.
The SPSC **awaits** the results of the 2016 run before reviewing plans beyond 2016.

Prossimi test su rivelatore

- Use radioactive sources in Lecce to test and learn how to test diamond

- July testbeam:
  - All channels interconnected and in the readout
  - New PC-board
  - Diamond sensor:
    - Old graphitized sensor with
    - New graphitezed sensor
    - Au-Cr Metalized sensor