

Light up the dark

FH fellow meeting

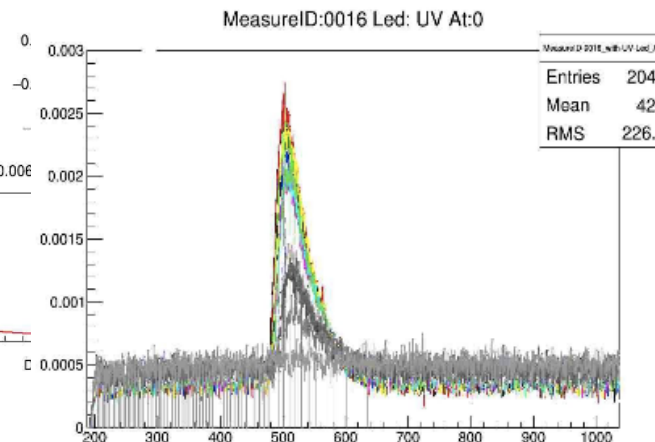
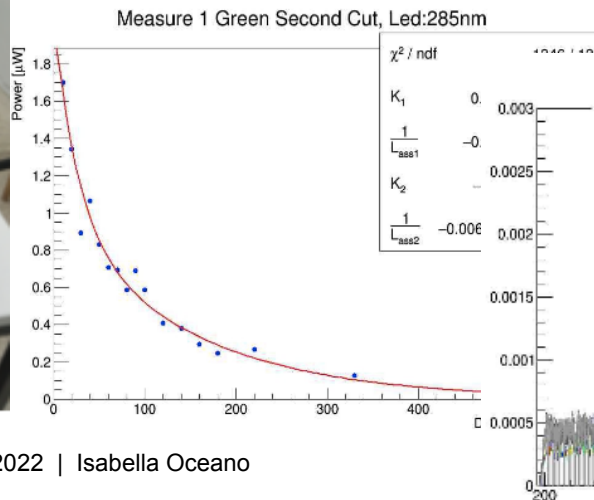
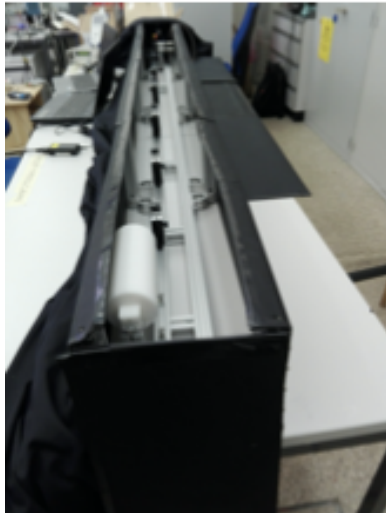
13th May 2022

Isabella Oceano

About Me

Background, past activities

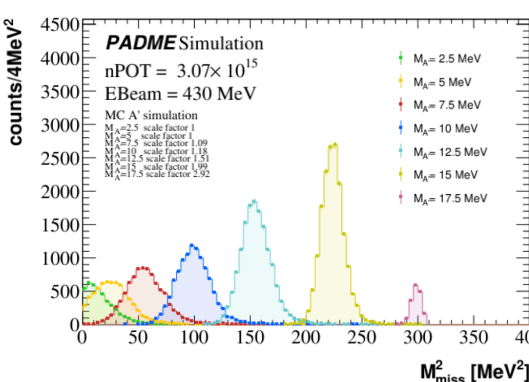
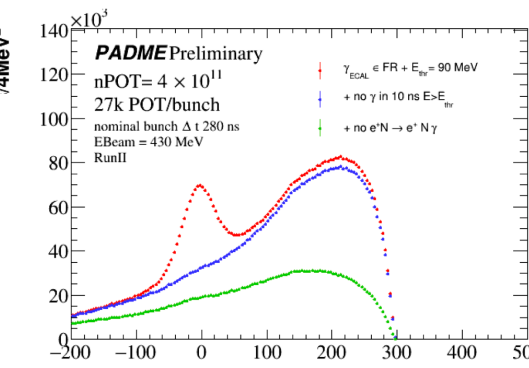
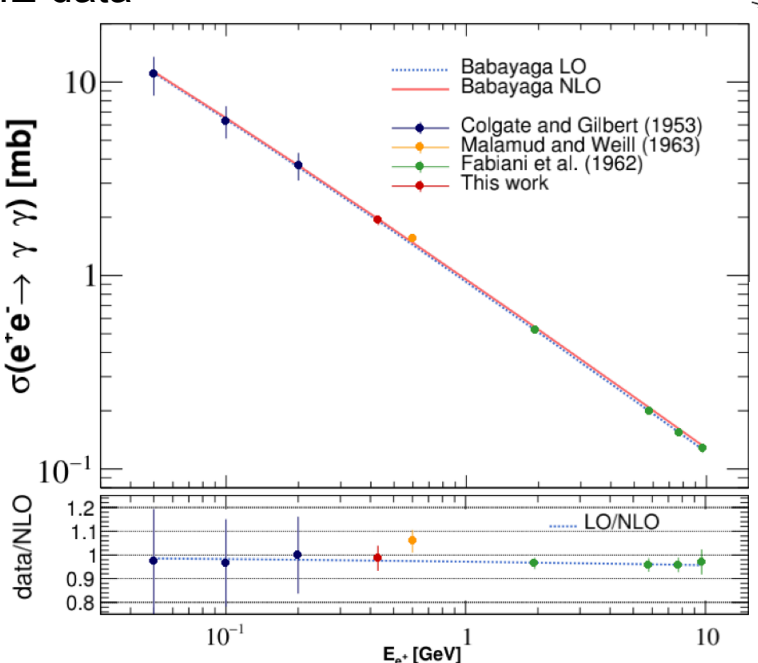
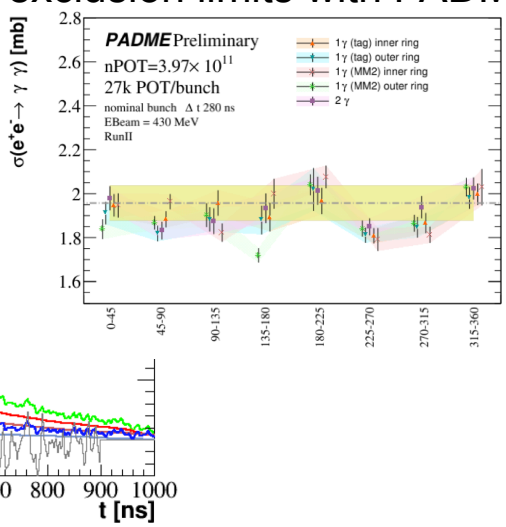
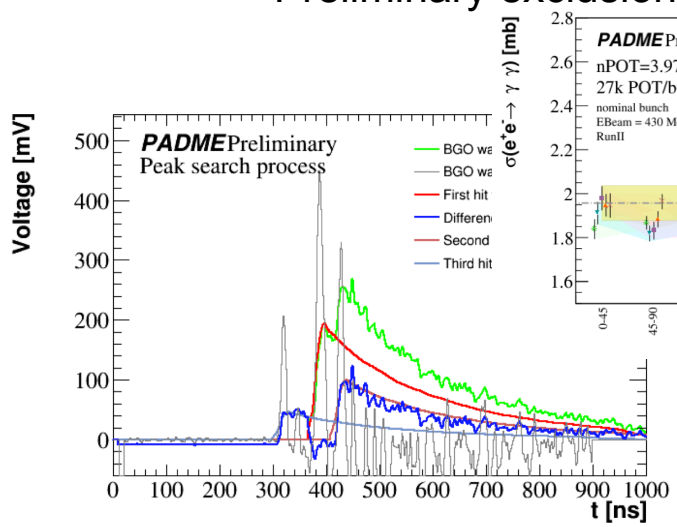
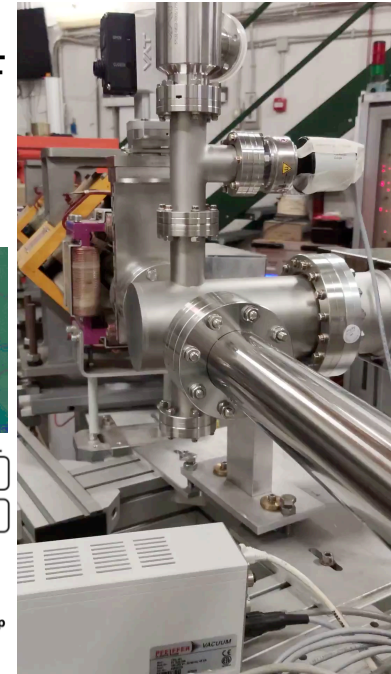
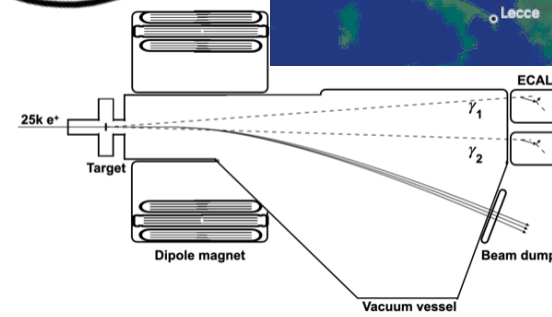
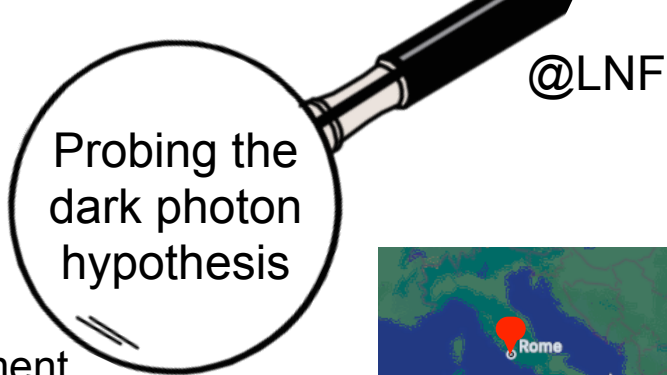
- Bachelor and Master degrees in Università del Salento (Lecce)
- 2014 - summer student at CERN
 - MicroMegas simulation for the ATLAS experiment
- 2016 - summer student at PSI
 - Characterization of scintillating fibers for the MEGII experiment



About Me

Background, past activities

- I started my Ph.D. in Lecce working for the PADME experiment
 - Part of 2018 - Experiment construction
 - 2019 - Software developer and MC simulation
 - 2020 → beginning 2022
 - $e^+e^- \rightarrow \gamma\gamma(\gamma)$ cross-section measurement at $\sqrt{s} = 21$ MeV
 - Preliminary exclusion limits with PADME data



My Current Work

Activities and challenges

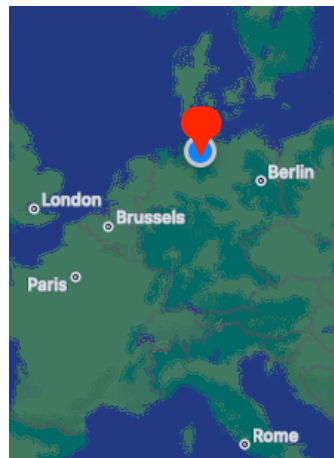
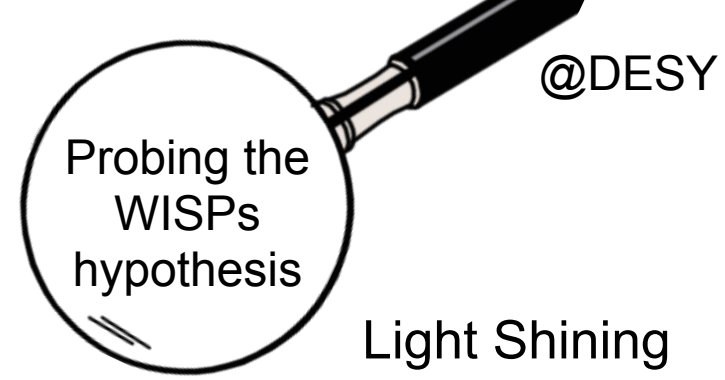
- On 19 April 2022, I started my fellow at DESY
- Joining ALPS II collaboration - search for axion / ALP a
 - DAQ and HET sensing

$$L_a = g_{a\gamma\gamma} \phi_a \vec{E} \cdot \vec{B}$$

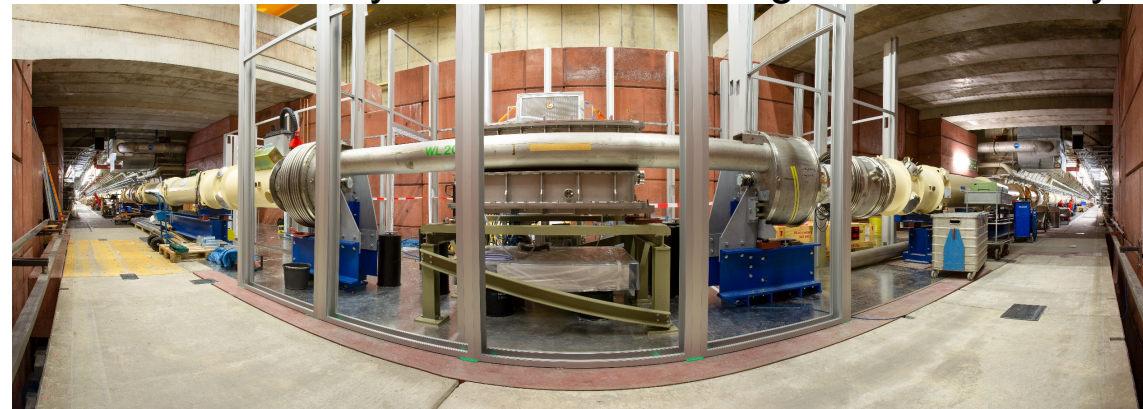
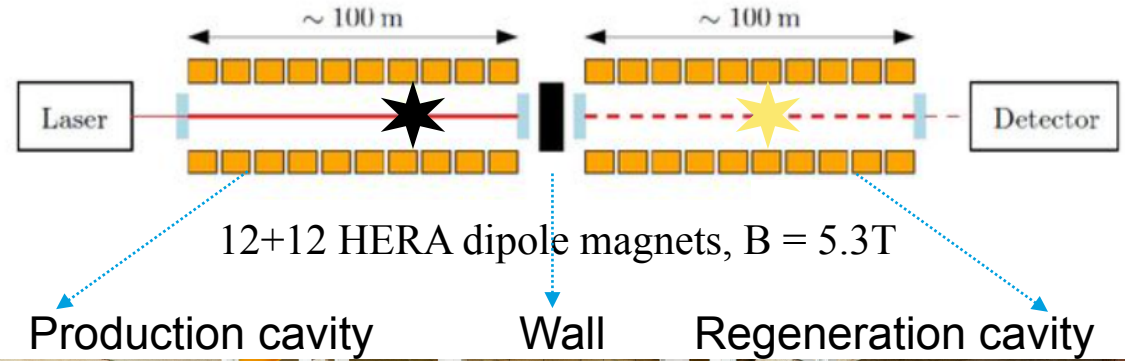
Axon-photon coupling Axion field Static magnetic field Oscillating electric field

Two independent detection systems

- HETerodyne detection (HET)
 - Interference effects
- Transition Edge Sensor (TES)
 - Reconverted photon signal



Light Shining through a Wall



(a) to be, or (a) not to be, that is the question 4
Data-taking starts in September!

My Favourite Plot

The beginning

Don't shoot for the stars. We already know what's there. Shoot for the space in between because that is where the real mystery lies.

V.Rubin

