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DE VALÈNCIA

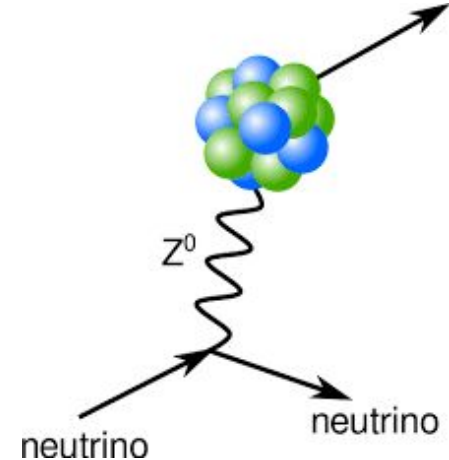
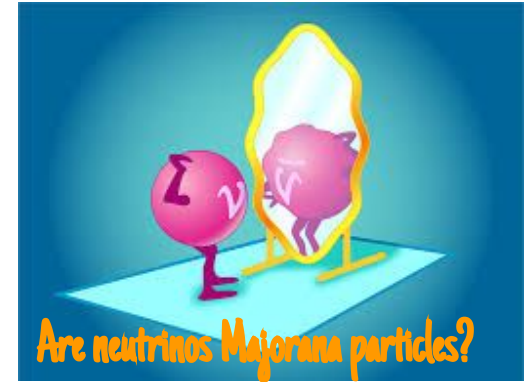
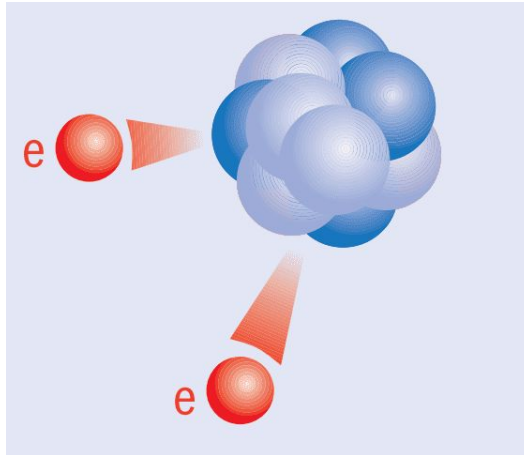
Gonzalo Martínez Lema

IFIC Newcomers fest

12/12/2025

Hi, I'm Gonzalo Martínez Lema 🖐️

- Experimental neutrino physics
 - Neutrinoless double beta decay
 - Instrumentation for noble gas/liquid detectors
 - Coherent Elastic Neutrino Nucleus Scattering



Background



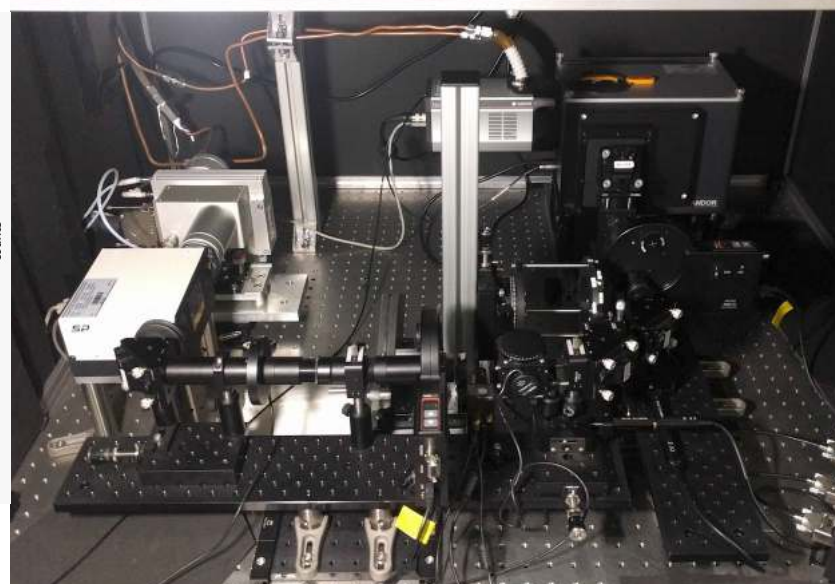
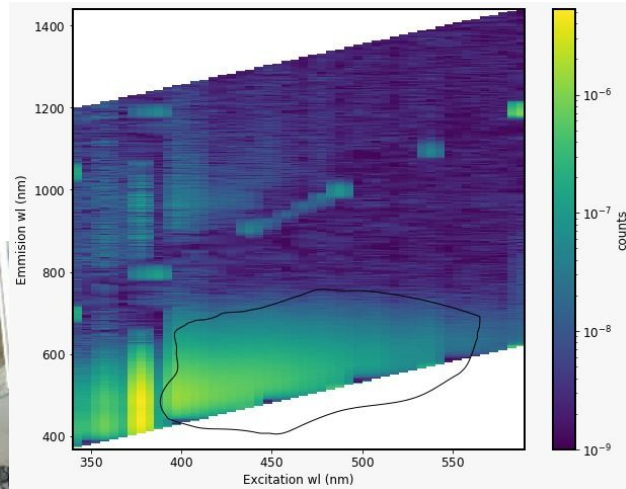
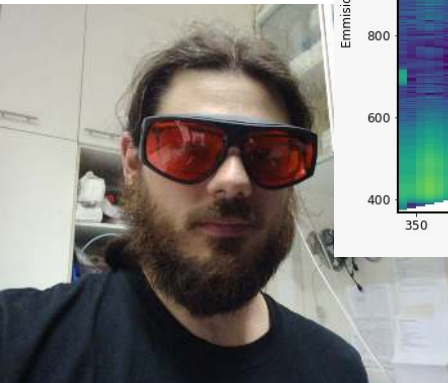
- PhD in nuclear and particle physics at U. Santiago de Compostela
- NEXT Collaboration
 - Monte Carlo
 - Software architecture and development
 - Commissioning and calibration of the NEXT-White detector
 - Estimation of sensitivity of NEXT to double electron capture





Background

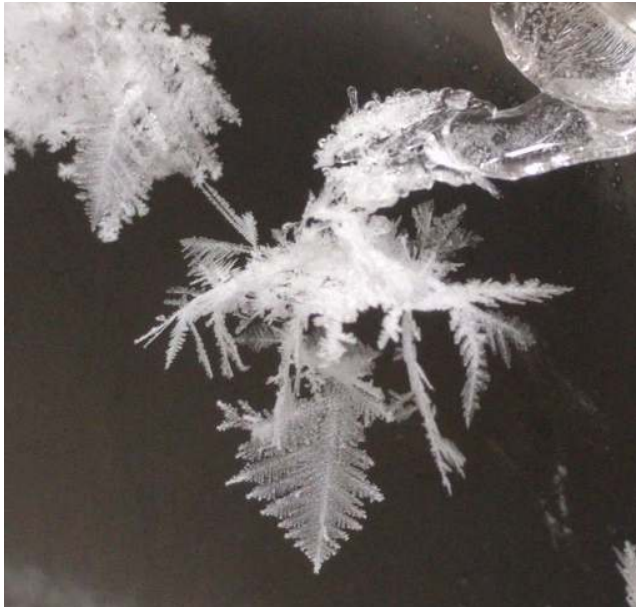
- Color centers (CC) for low-mass Dark Matter searches
 - Optical setup
 - Spectral analysis





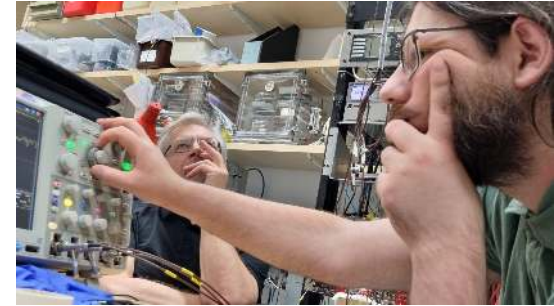
Background

- Cryogenics!

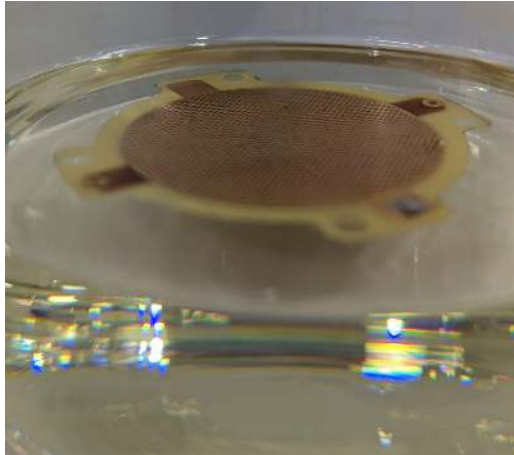


Background

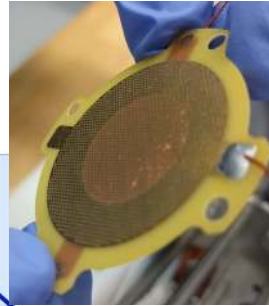
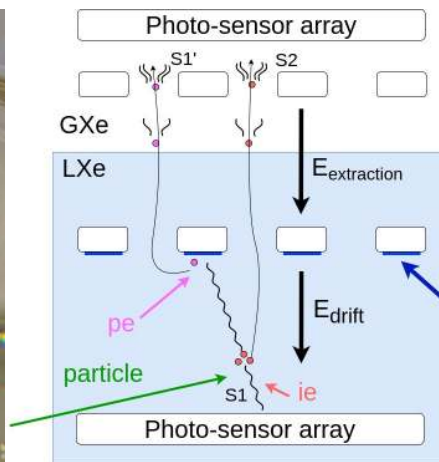
- Novel amplification structures for noble liquid detectors
 - Dual phase (FHM, LHM)
 - Single phase (Microstrip plates)
 - CsI VUV photocathodes



FHM

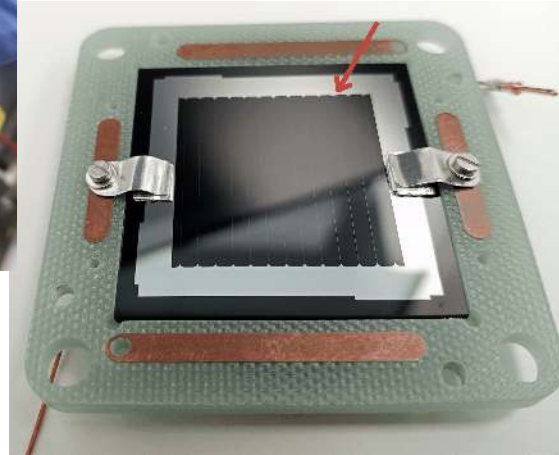


LHM / CsI



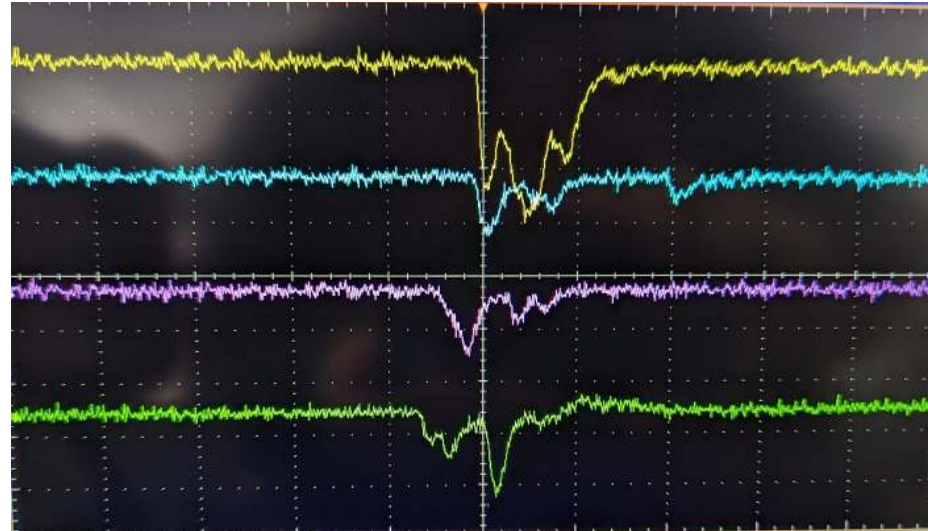
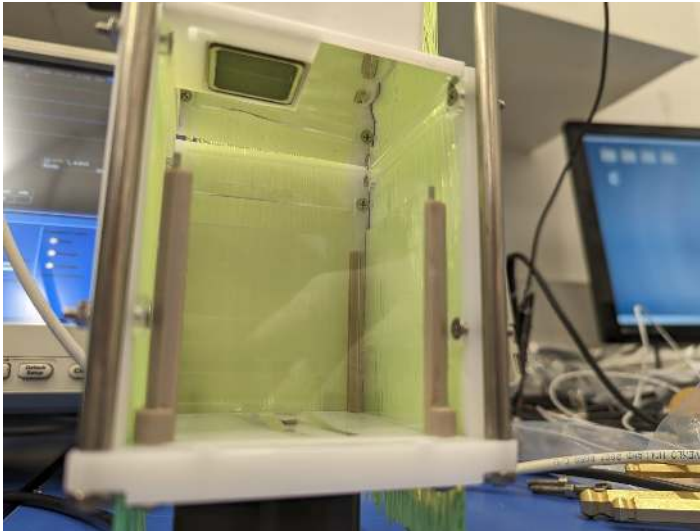
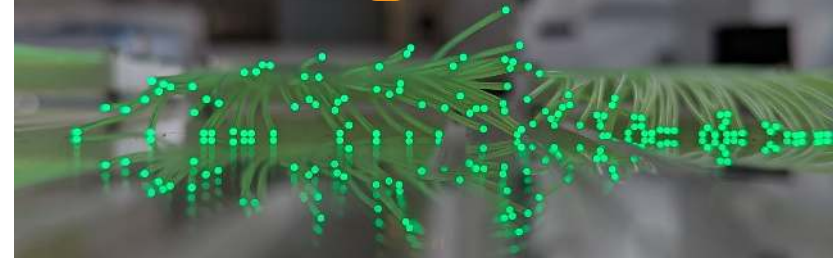
CsI

Microstrips



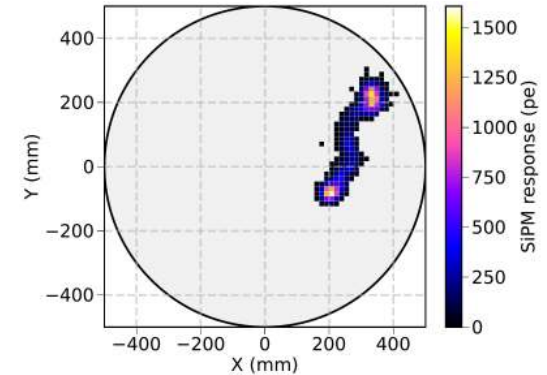
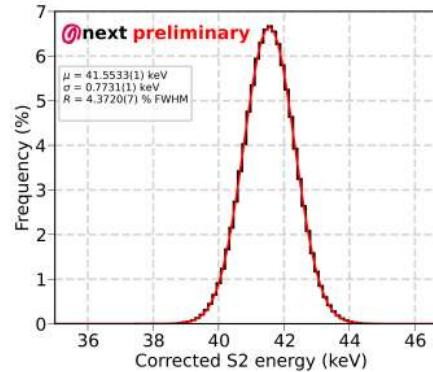
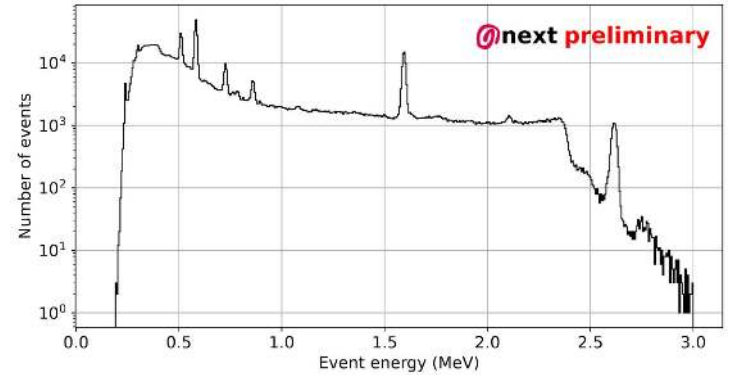
Background

- R&D on wavelength-shifting fibers for future NEXT detectors



Background

- Commissioning of the NEXT-100 detector
- Low energy calibration
- High energy calibration



Present & future

- Development of the COLINA detector @ IFIC
- R&D of EL amplification in noble liquids

