



# University Mohammed Premier Oujda

**Request to join the ePIC Collaboration**

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**January 12, 2024**

# Outline

- **University Mohammed Premier - Groupe activities**
  
- **Plan for the ePIC**

# University Mohammed Premier Oujda



## 10 Institutions + CHU

- 4 faculties
- 3 College of Engineering
- 1 College of business
- 2 Higher Schools of Technology
- Faculty of Medicines and Pharmacy
- Hospital of the University (CHU)



# Laboratory of Physics, Radiations and matter (LPMR)

## **Four Groups:**

- Theoretical Physics, Plasma Physics, and Applications.
- Quantum Matter, Spectroscopy, and Their Applications.
- **High energy physics, Nuclear and Medical Physics.**
- Physics of Structured Materials, Radiations, and Applications.

**- 21 seniors, 36 PhD Students**

**- Master degree: Physics of matter and Radiations**

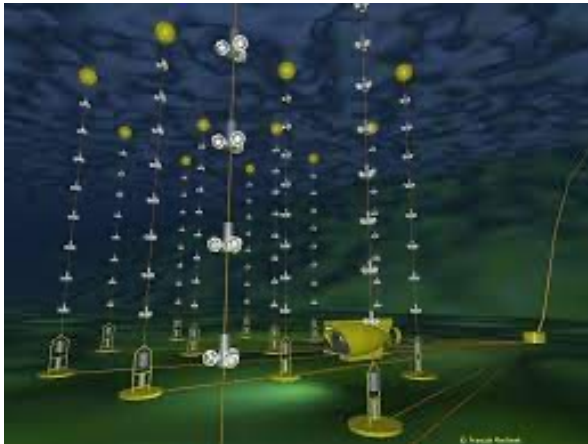


# High energy physics, Nuclear and Medical Physics Group

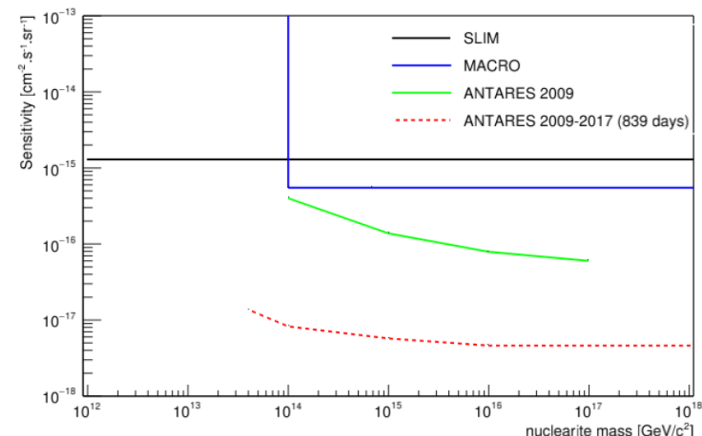


## Astroparticles

# ANTARES Neutrinos Telescope



## ➤ Nuclearite search with ANTARES

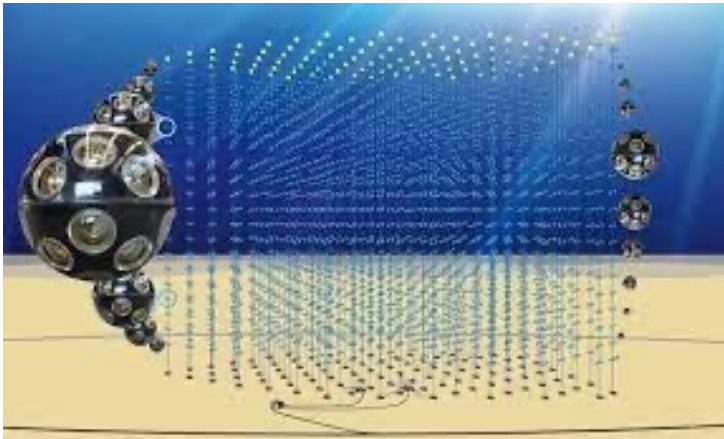


# High energy physics, Nuclear and Medical Physics Group



## Astroparticles

# KM3NeT Neutrinos Telescope



- **Search for exotic particles**
- **Neutrino mass ordering studies**

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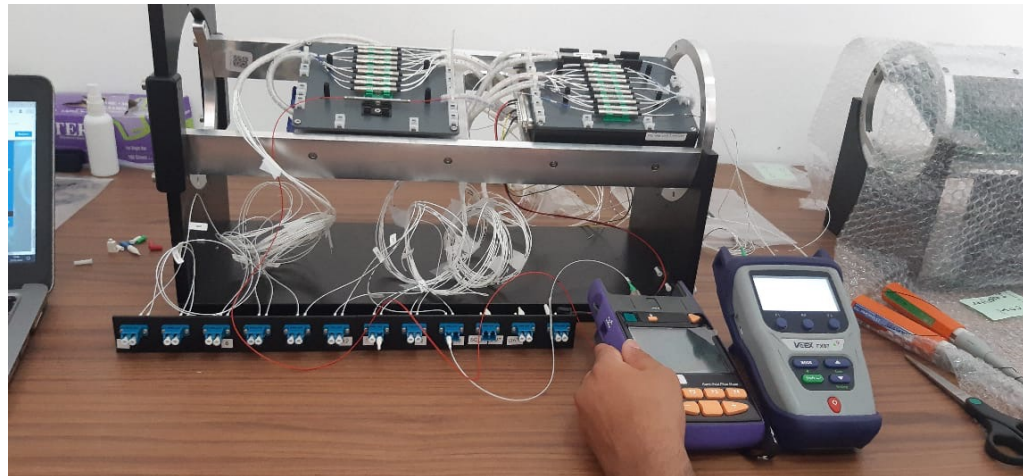
## Astroparticles

# KM3NeT Neutrinos Telescope

## Integration of Optoelectronics

## routers for KM3NeT Neutrinos Telescope

## National Site - Oujda





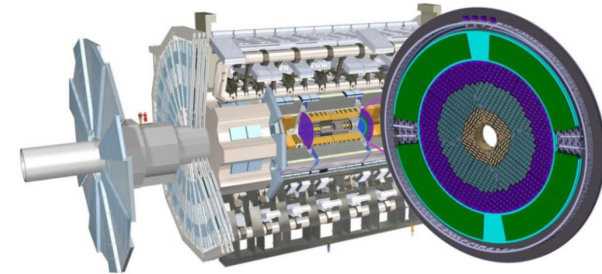
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## Particle Physics experiment: ATLAS experiment

### Software framework Contributions:

➤ Migration of the ATLAS magnetic field service to support multithreading access.



➤ Developing a python script-based application and a web interface for managing the HGTD production database for module assembly components.

➤ Defining the HGTD detector using an XML-based format and integrating this detailed description into the ATLAS software framework (Athena).



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## Particle Physics experiment: ATLAS experiment

### Physics Analysis:

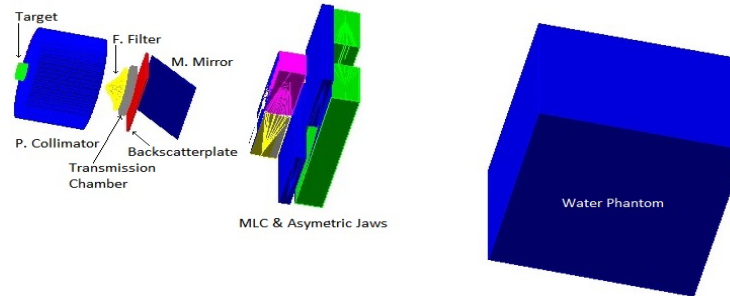
- A statistical combination of dark photon searches in resonant photon plus missing transverse momentum signatures.
- Dark photon search using RUN-3 data from the ATLAS detector, with a specific focus on gluon-gluon fusion production for the Standard Model Higgs mass.
- Light-by-Light scattering in Lead-Lead collisions of ATLAS detector.

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## Medical Physics - Miscellaneous

### Medical Physics:

- Validation of GEANT#4 for the Electra Synergy Plateform



- Design and Integration of an Innovative System for Electron Beam Monitoring in FLASH Radiotherapy
  - Design and simulation work package

### Miscellaneous:

- Pan-African project on leveraging artificial intelligence for early tuberculosis diagnosis and treatment

# Plans for the ePIC

- ❖ **The AC-LGAD-TOF: test sensors, integration, ...**
- ❖ **Simulations**
- ❖ **Performance studies**
- ❖ **Software**

**Thank you very much**