

# GDR DI2I - Introduction to WP4

## Calorimetry and photodetectors

Mathieu BONGRAND

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## WP4 - Calorimetry and photodetectors

Photodetectors are almost used in all the IN2P3 experiments:

- ▶ dark matter search
- ▶ neutrinos & double beta decay
- ▶ high energy physics & LHC
- ▶ astroparticles
- ▶ nuclear physics
- ▶ medical diagnosis

Readout of the light from scintillators (organic, inorganic and cryo) or Cherenkov radiators

Photodetectors: PMTs, MCP-PMT, SiPMs...

Challenges: quantum efficiency, large dynamic range [1-1000] photons, detection surface, fast timing, radiation hardness, wavelength extension, dark count rate...

Coordinator: Mathieu Bongrand ([mathieu.bongrand@in2p3.fr](mailto:mathieu.bongrand@in2p3.fr))

## WP4 - Organisation

- ▶ Very wide domain of expertise in the WP4
- ▶ Proposal to have at each DI2I workshop a state-of-the-art review in one of the fields of WP4
- ▶ Many thanks to **Sara MARCATILI** from LPSC Grenoble to start this cycle with the review of calorimetry and photodetectors for medical applications
- ▶ Talks of the WP4 this week:
  - ▶ **Vsevolod Yeroshenko** - IJCLab Orsay - PLUME : luminomètre Cherenkov pour LHCb
  - ▶ **Medhi Tarisien** - LP2I Bordeaux - Scintillateurs inorganiques (LaBr) pour spectrométrie gamma en milieu très perturbé
  - ▶ **Antoine Beauchêne** - LLR Palaiseau - Reconstruction charge et temps des PMTs de HyperKamiokande avec l'ASIC HKROC
  - ▶ **Ianina Boiaryntseva** - IJCLab Orsay - GRAiNITA - a new generation calorimeter
  - ▶ **Mathieu Bongrand** - Subatech Nantes - Tests SiPMs et fibres optiques pour LiquidO