

GDR-DUPhY

Deep Underground Physics

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(Speaker: Maryvonne De Jésus (ip2i))

The GDR DUPhy aims to federate the French community of underground experiments dedicated to rare event physics.

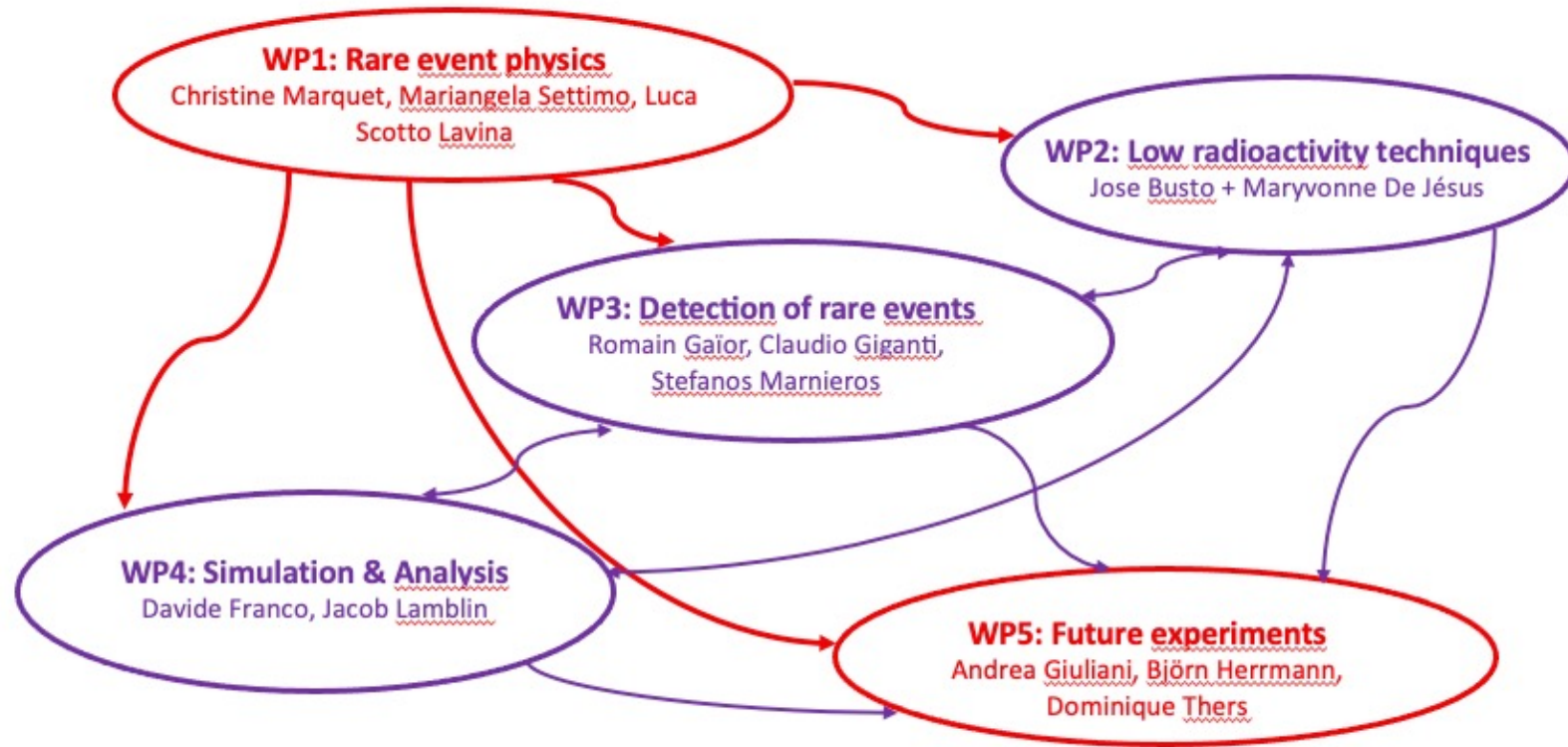
The goal is to pool our expertise to strengthen exchanges, increase synergies and develop new collaborations between theorists and experimentalists.

GDR DUPhy missions:

- **facilitate the emergence and access of new players to European underground platforms (LSM, LNGS, LSC, BUL...),**
- **provide visibility to the French underground physics community,**
- **help foster the emergence of new collaborations on new projects,**
- **encourage and support the younger generation of researchers working in the field**
- **initiate discussions on the future needs of experiments in the field of DUPhy**

Through multi-thematic exchanges, the GDR DUPhy goal is to define a strategy, both **scientific and **technological**, for 3rd generation projects in DULs to study physics BSM. In particular, but not only, the properties of neutrinos and the identification of dark matter nature.**

→ Five work packages (WP)



Connected topics outside DULs (theory/exp.)
 Nuclear astrophysics and nuclear physics;
 Other DM searches (indirect detection and accelerators);
 Study of gravitational waves;
 Other studies of ν properties;
 BSM physics

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Topics associated with rare event physics in deep underground labs
 Experimental searches in particular $\beta\beta 0\nu$ and DDDM;
 Theoretical searches in astroparticles, particle and nuclear physics

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Other topics in DULs and/or technologies associated with LRTs/rare events (theory/exp)
 Energy, biology, radioactivity and environment, ultra-low radioactivity requirements...

Thematic exchanges common days GDR DUPhy –

- **1st General Meeting Paris December 2021: IRN Neutrino**
- **2nd General Meeting Nantes :**

- ✓ **19th October 2022: IRN Terascale**

- ✓ **20th october 2022: LSM discussion**

Special open session on future ideas for astroparticle physics experiments at LSM, in order to better prepare its medium and long-term science program. Introduction by the LSM scientific director (including not astroparticle program), followed by presentations of current and future experiments, then a discussion on the best way to produce a final proposition for the LSM strategic council.

- <https://gdrduphy.in2p3.fr/>
- <https://indico.in2p3.fr/event/27894/>
- <https://listserv.in2p3.fr/cgi-bin/wa?A0=GDRDUPHY-L>

*Thank you
and
enjoy the meeting*