Luigi Pertoldi — ACADEMIC RESUME

https://gipert.github.io

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Education

- **Università degli Studi di Padova, INFN Sezione di Padova** — Padova, Italy
  Ph.D. in Physics, cum laude — *Oct 2017 – Sep 2020*
- **Università degli Studi di Padova** — Padova, Italy
  Master of Physics. 110/110 cum laude — *Oct 2015 – Jul 2017*
- **Università degli Studi di Padova** — Padova, Italy
  Bachelor of Physics. 104/110 — *Oct 2012 – Sep 2015*

Experience

- **TU München & INFN Padova** — München, DE
  Post-doc fellow at TUM & Associated visitor at INFN — *Nov 2020 – Present*
  - **Liquid argon detector instrumentation**: Development of the software routines for analyzing SiPM detector data in the context of the LEGEND-200 experiment.
  - **HPGe detector characterization**: Modeling and *in-situ* characterization of the GERDA HPGe detectors active volume with low-energy ^{39}Ar events recorded by the experiment.
  - **LEGEND background modeling**: Development of the LEGEND-1000 background model for the DOE project proposal.
- **University of Padova & INFN Padova** — Padova, IT
  Ph.D. student — *Oct 2017 – Oct 2020*
  - **Background modeling and new ββ physics searches**: A predictive background model is essential when searching for rare events. In GERDA, the event energy spectrum is fitted to a mixture of simulated background and signal shapes, in order to constrain the presence of new physics phenomena on the top of the $2\nu\beta\beta$ decay spectrum.
  - **Liquid argon detector modeling**: The GERDA experiment achieves an outstanding background suppression efficiency by exploiting the scintillation properties of liquid argon, in which the germanium detectors are submerged. A part of the background model is devoted to reproduce the observed event suppression with Monte Carlo simulations.
  - **The MaGe simulation toolkit**: Development of MaGe, a Geant4-based software framework to simulate background and signal events in various ββ-decay-related experimental setups, including GERDA, Majorana and LEGEND.
  - **HPGe detector modeling and characterization**: Development of the data acquisition software suite used in the characterization campaign of the new point-type inverted-coaxial germanium detectors used in LEGEND.

Publications

[1] N. Abgrall et al. "The Large Enriched Germanium Experiment for Neutrinoless $\beta\beta$ Decay: LEGEND-1000 Preconceptual Design Report" (2021). arXiv: 2107.11462 [physics.ins-det]

[2] M. Agostini et al. "Calibration of the GERDA experiment". *Eur. Phys. J. C* 81.8 (2021), p. 682. DOI: 10.1140/epjc/s10052-021-09403-2. arXiv: 2103.13777 [physics.ins-det]

[3] M. Agostini et al. "Characterization of inverted coaxial ^{76}Ge detectors in GERDA for future double-β decay experiments". *Eur. Phys. J. C* 81 (2021), p. 505. DOI: 10.1140/epjc/s10052-021-09184-8. arXiv: 2103.15111 [physics.ins-det]

[4] M. Agostini et al. "Final Results of GERDA on the Search for Neutrinoless Double-β Decay". *Phys. Rev. Lett.* 125.25 (2020), p. 252502. DOI: 10.1103/PhysRevLett.125.252502. arXiv: 2009.06079 [nucl-ex]

[5] M. Agostini et al. “Modeling of GERDA Phase II data”. *JHEP* 03 (2020), p. 139. DOI: 10.1007/JHEP03(2020)139. arXiv: 1909.02522 [nucl-ex]

[6] M. Agostini et al. “The first search for bosonic super-WIMPs with masses up to 1 MeV/c^2 with GERDA”. *Phys. Rev. Lett.* 125.1 (2020), p. 011801. DOI: 10.1103/PhysRevLett.125.011801. arXiv: 2005.14184 [hep-ex]

[7] M. Agostini et al. “Probing Majorana neutrinos with double-β decay”. *Science* 365 (2019), p. 1445. DOI: 10.1126/science.aav8613. arXiv: 1909.02726 [hep-ex]

[8] M. Agostini et al. “GERDA results and the future perspectives for the neutrinoless double beta decay search using ^{76}Ge”. *Int. J. Mod. Phys. A* 33.09 (2018), p. 1843004. DOI: 10.1142/S0217751X18430042

[9] M. Agostini et al. “Improved Limit on Neutrinoless Double-β Decay of ^{76}Ge from GERDA Phase II”. *Phys. Rev. Lett.* 120.13 (2018), p. 132503. DOI: 10.1103/PhysRevLett.120.132503. arXiv: 1803.11100 [nucl-ex]

Links

- **Personal portfolio**: gipert.github.io
- **ORCID ID**: orcid.org/0000-0002-0467-2571
- **INSPIRE-HEP**: inspirehep.net/authors/1667599

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