CURRICULUM VITAE

Chiara Filomena Lastoria

Research Experience

January 2021 - now
Postdoctoral CNRS fellowship in the neutrino physics group at Centre de Physique des Particules de Marseille - CPPM, UMR 7346 - for the KM3NeT experiment (Supervisor: Dr. V. Bertin). The main research topic is the analysis of the ORCA data for studying atmospheric neutrino oscillations.

March 2016 - December 2020
Ph.D. student in the neutrino physics group at the Spanish Research Center Centro de Investigación Energéticas, Medioambientales y Tecnológicas - CIEMAT - of Madrid for the Deep Underground Neutrino Experiment (DUNE); Supervisor: Dr. C. Palomares. Associated Member of the Personnel (User) of the European Organization for the Nuclear Research (CERN, Genève, Switzerland).

Ph.D. research activities:
Deeply involved in the study of the light production and propagation in dual-phase (DP) liquid argon (LAr) time projection chamber (TPC) prototype detectors (WA105-DP and ProtoDUNE-DP):

- Strong contributor in the data analysis of the scintillation and electroluminescence light signals in the WA105-DP demonstrator. The achieved results allowed the validation of the photon detection system for the ProtoDUNE-DP detector and the baseline design for the DUNE DP far detector module. The good understanding of the light signals has a crucial role to optimize the light simulation in DP detectors and study the optical parameters to improve the photon detection in multi-ton scale detectors.
- Participation in the commissioning and operation of the WA105-DP demonstrator (also referred as "4-tonne" or "3×1×1" demonstrator), built and exposed to cosmic muons in Bld. 182 at CERN in 2017.
- Actively involved in the characterization of the photon detection system for both DP prototypes in CIEMAT laboratory.

Involvement in the data taking of the Double Chooz experiment.

November 2014 - February 2016
Internship at the University of Rome 2 "Tor Vergata" in MAMBO group for the BGO-OD experiment (Supervisors: Dr. R. Di Salvo and Dr. A. Fantini). Partecipation to the construction and test (HV and cosmic-rays) of a new MRPC detector to be installed in the BGO-OD apparatus.

September 2013 - September 2014
Internship in the Laboratori Nazionali di Frascati (LNF-INFN) in Rome during the Master Degree in the ATLAS experiment (Supervisor: Dr. M. Antonelli, Dr. M. Testa, Dr. G. Volpi). Associated Member of the Personnel (User) of the European Organization for the Nuclear Research (CERN) (Genève, Switzerland) for the ATLAS experiment.

Publications

WA105 Collaboration, ***'Performance study of a 3×1×1 m^3 dual phase liquid Argon Time Projection Chamber exposed to cosmic rays.'***, 2021, arXiv:2104.08227 - submitted to JINST

B. Aimard et al., ***'Study of scintillation light collection, production and propagation in a 4 tonne dual-phase LArTPC'***, 2021 JINST 16 P03007, arXiv:2010.08370

D. Belver et al., ***'ProtoDUNE-DP Light Acquisition and Calibration Software'***, 2021, arXiv:2103.02415

B. Abi et al., DUNE Collaboration, ***'Deep Underground Neutrino Experiment (DUNE) Technical Design Report, Vol I: Introduction to DUNE'***, 2020 JINST 15 T08008, arXiv:2002.02967

B. Abi et al., DUNE Collaboration, ***'Deep Underground Neutrino Experiment (DUNE) Technical Design Report, Vol II: DUNE Physics'***, (2020), arXiv:2002.03005

C. Lastoria on behalf of DUNE Collaboration, ***'Analysis of the light production and propagation in the 4-tonne dual-phase demonstrator'***, 2020 JINST 15 C06029, arXiv:1911.06880

C. Lastoria on behalf of DUNE Collaboration, ***'Scintillation light collection, productionand propagation in the 4 tonne dual-phase demonstrator (data analysis and simulations)'***, PoS (LeptonPhoton2019) 144, (2019), arXiv:1911.06874

D. Belver et al., ***'A light calibration system for the ProtoDUNE-DP detector'***, JINST 14 T04001 (2019), arXiv:1902.07127

B. Abi et al. (DUNE Collaboration), ***'The DUNE Far Detector Interim Design Report, Volume 3: Dual-Phase Module'***, (2018), arXiv:1807.10340

B. Aimard et al., ***'A 4 tonne demonstrator for large-scale dual-phase liquid argon time projection chambers'***, 2018 JINST 13 P11003, arXiv:1806.03317

D. Belver et al., ***'Cryogenic R5912-02Mod Photomultiplier Tube Characterization for the ProtoDUNE Dual Phase Detector'***, 2018 JINST 13 T10006, arXiv:1806.04571

C. Lastoria, ***'Characterization of the 8 inches R5912-02Mod Hamamatsu PMT, baseline for the light detection system in WA105-DP and ProtoDUNE-DP experiments'***, (2017) - Internal Technical Note

other publications available on https://inspirehep.net.

Posters, Talks, Outreach activities

Talk presentation, ***'Analysis of the light production and propagation in the 4-tonne dual-phase demonstrator'***, at the LIDINE 2019: Light Detection in Noble Elements Conference (University of Manchester, Manchester, UK - August 28^{th}-30^{th}, 2019)

Poster presentation, ***'Scintillation light collection, production and propagation in the 4 tonne dual-phase demonstrator (data analysis and simulations)'***, at the "XXIX International Symposium on Lepton Photon Interactions at High Energies" Conference (Toronto, Canada - August 5^{th}-10^{th}, 2019)

Talk presentation, ***'Analysis of the light production and propagation in the 4 tonne dual-phase demonstrator'***, at the Groupement de Recherche Neutrino Meeting (LPNHE laboratory - University of Pierre et Marie Curie, Paris, France - June 25^{th}-26^{th}, 2019)

Poster presentation, ***'The light detection system in ProtoDUNE-DP'***, at the Neutrino 2018 Conference (Heidelberg, Germany - June 4^{th}-9^{th}, 2018) and at the "11th International Neutrino Summer School" (Mainz, Germany - May 20^{th} - June 1^{th}, 2018)

Talk presentation, ***'The light detection system for the WA105/ProtoDUNE-DP neutrino detector at CERN'***, at the "XXXVI Reunión Bienal de la Real Sociedad Española de Física" (Santiago de Compostela, Spain - July 17^{th}-21^{th}, 2017

Talk presentation, ***'Photo Multipliers Tubes characterization for WA105 experiment'*** at the "Taller de Altas Energías - International Summer School on High Energy Physics" (Benasque, Spain - September 4^{th}-17^{th}, 2016)

Outreach activities during the Ph.D.: seminars dedicated to Spanish secondary and high school classes to build interest in physics concepts, experiments, and discoveries; volunteer at the CERN Open Days 2019 for the activities at the the Neutrino Platform (Genève, Switzerland).

Other outreach activities: Scientific guide in "Numeri. Tutto quello che conta da zero a infinito." exhibition at the Palazzo delle Esposizioni in Rome and for the ATLAS experiment stand at the Open Day of "Laboratori Nazionali di Frascati" of INFN.

Education

Ph. D.: Universidad Complutense de Madrid (Spain):

- Thesis: "Analysis of the scintillation light production and propagation in the WA105 Dual-Phase demonstrator."
- Supervisors: Dr. Carmen Palomares Espiga
- Assessment: Sobresaliente "Cum Laude"

Master's Degree in Particle Physics: Università di Roma 2 "Tor Vergata" (Italy):

- Thesis: "Performances of the ATLAS High Level Trigger using a Particle Flow algorithm based on FTK tracks for ZH$\rightarrow \nu\bar{\nu}b\bar{b}$."
- Supervisors: Prof. Anna Di Ciaccio, Dr. Mario Antonelli, Dr. Marianna Testa

Bachelor's Degree in Physics: Università di Roma 2 "Tor Vergata" (Italy):

- Thesis: "Vapour sensors based on luminescent nanostructures of InP."
- Supervisors: Dr. P. Prosposito, Dr. M. Casalboni

Languages

- **Mother tongue:** Italian
- **Other languages:** English (very good)
  Spanish (very good)
  French (beginner)