Curriculum vitae et studiorum

Redatto ai sensi dell'art. 47 del D.P.R.445/2000 e successive modificazioni

Mariangela Bondí

Name: Mariangela Bondí
Nationality: Italian
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Studies

2015 PhD in Physics, University of Catania, "Heavy-ion double charge exchange reactions as tools for $0\nu\beta\beta$ decays (Tutors: Prof F. Cappuzzello) 40Ca(18O,18Ne)40Ar reaction at 270 MeV by using MAGNEX

2011 Master's degree in Physics, University of Catania, scores: 110/110 cum laude

Work experiences

September 2022 -Present Thecnologist at INFN - Sezione di Catania;

February 2022 - September 2022 RTD-A (Fixed-term researcher) at University of Roma Tor Vergata;

2020 -January 2022 Post-Doc at INFN - Sezione di Genova;

2015 - 2019 Post-Doc at INFN - Sezione di Catania;

International collaborations

2020 - now Member of CLAS Collaboration (JLab – US)

2020 - now Member of EIC (ePIC) Collaboration (BNL - US)

2015 - now Member of BDX Collaboration (JLab - US)

2015 - now Member of HPS Collaboration (JLab - US)

Scientific activity

2024 - now Co-spokesperson proposal at PAC53 "Electro- and photo-production of muon pairs with μCLAS12: Double Deeply Virtual Compton Scattering, Timelike Compton Scattering, and J/Ψ production"

2024 - now Responsible of MC simulation for MPDG EndCap trakcers of EPIC@EIC

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2022 - now Co-spokesperson experiment E-12-16-001 'Dark matter search in a Beam-Dump eXperiment (BDX) at JLab

2021 - now Co-Responsible of MC simulation for CLAS12 upgrade

2020 -2022 Coordinator of SRO prototype readout system testing and data analysis

2019 -2021 Co-coordinator of BDX-MINI detector, data-taking and data analysis

2018 -2019 Coordinator of BDX-HODO detector, data-taking and data analysis

2015–2018 Co-coordinator of BDX-PROTO test campaign and external veto system

Published papers

May 2025 Total: 115, h-index: 24;

Workshop and Conference Organizing Committees

2025 OC Member, SRO-XIII - Catania, Italy

2025 LOC Member, LDMA'25 – Genova, Italy

2019 LOC Member, LDMA'19 – Venice, Italy

2017 LOC Member, LDMA'17 – Elba Island, Italy

Talks at conferences and workshops

2025 Talk: "Future physics opportunities with CLAS12 upgrades",The 61st International Winter Meeting on Nuclear Physics, Bormio, Italy;

2024 Invited Talk: "Experimental overview of Sub-GeV Physics in the Dark sector", Science at the Luminosity Frontier: Jefferson Lab at 22 GeV, Frascati, Italy;

2024 Invited Talk: "BSM physics at JLab: new opportunities with secondary beams and CEBAF positron upgrade", Hadron Physics 2030, Orsay, France;

2024 Invited Talk: "The CLAS12 luminosity upgrade and future physics opportunities", DIS2024, Grenoble, France;

2024 Invited Talk: "From the fruitful experiences with CLAS12 Forward Tagger towards the next generation calorimeters", APS April Meeting 2024;

2023 Invited Talk: "SRO test at JLAB", Streaming readout Workshop SRO-XI, Hawaii, USA;

2023 Invited Talk: "New opportunities at JLAB using secondary beams", Science at the Luminosity Frontier: Jefferson Lab at 22 GeV Workshop, Jefferson Lab;

2022 Invited Talk: "Light Dark Matter Factory @ JLAB", International Conference on Neutrino and Dark Matter (NuDM2022), Sharm el Sheik;

2021 Talk: "Recent experience with Streaming Readout for CLAS12-Forward Tagger", TIPP 2021, Vancouver, CA.

2021 Talk: "Streaming data acquisition system for CLAS12 Forward Tagger", CPAD Instrumentation Frontier Workshop 2021, Stony Brook, NY, USA

2019 Talk: "The BDX detector prototype for Dark Matter searches in a Beam Dump eXsperiment @ JLAB", 15th Topical Seminar on Innovative Particle and Radiation Detectors (IPRD19), Siena, Italy;

2018 Talk: "The Beam Dump eXperiment", 13th Conference on the Intersections of Particle and Nuclear Physics - CIPANP Palm Springs, USA;

2017 Invited Talk: "Review on searches for light dark matter at fixed target electron accelerators", 13th Rencontres du Vietnam: Exploring the Dark Universe, Quy Nhon, Vietnam.

2016 Talk: "Study of the response of a CsI(Tl)-SiPM detector to low energy protons", 14th Topical Seminar on Innovative Particle and Radiation Detectors (IPRD16), Siena, Italy;

2013 Talk: "Selectivity of the (^{18}O,^{16}O) two-neutron transfer reaction", 63th International Conference on Nuclear Physics - Nucleus 2013 Moscow, Russia.

2013 Talk: "(^{18}O,^{18}Ne) Double charge-exchange reaction with MAGNEX", 7th European summer school on experimental nuclear astrophysics, Santa Tecla, Italy.

Teaching and academic activity

2024 Master thesis supervisor, "Characterization of innovative glass scintillators for future calorimetry" I.Cali – University of Catania

2021 Master thesis supervisor, "Characterization of innovative glass scintillators for future calorimetry" M.Spreafico – University of Genova

2020 - 2021 Contract lecturer at the University of Genova (General Physics for Mechanical Engineering)

Outreach

2022 - now Outreach Coordinator of INFN - Sezione di Catania

Research activity

I carry out my research in experimental hadron physics and light dark matter search with high-intensity electron beams. I am a member of the international collaborations CLAS, EPIC, BDX, and HPS.

My main research interest focuses on probing light dark matter in fixed-target experiments. I am currently the co-spokesperson of the BDX experiment at Jefferson Lab, which aims to search for sub-GeV dark matter particles produced via the interaction of a high-intensity 11 GeV electron beam from CEBAF with the Hall A beam dump. The experiment is designed to detect potential dark matter signals through scattering in a downstream detector system. I am also a member of the Heavy Photon Search (HPS) collaboration, which searches for a new vector boson (dark photon, A') in a similar mass range.

Since 2020, my research has also expanded into the domain of hadronic structure and spectroscopy, through my involvement in the CLAS12 and EIC collaborations. Within CLAS12, I am contributing to

the Phase 1 luminosity upgrade (x2), particularly by developing Monte Carlo simulations for a new forward tracking system based on μRWELL detectors.

I am also part of the Phase 2 upgrade working group, which aims to enhance the luminosity by a factor of 100, making possible studies of previously unexplored processes, such as Double Deeply Virtual Compton Scattering (DDVCS) and Time-like Compton Scattering (TCS). This requires a modified CLAS12 detector, optimized for operation at enhanced luminosities, and I am involved in Monte Carlo simulations aimed at optimizing the new components of the detector. I am also the co-spokesperson of the experiment proposal "Electro- and photo-production of muon pairs with CLAS12: Double Deeply Virtual Compton Scattering, Timelike Compton Scattering, and J/ production."

My activities are sinergyc between CLAS12 and EIC. I am involved in the development of streaming data acquisition systems, which are relevant for both CLAS12 and BDX, and will be fundamental for future detectors like EPIC. In the context of EPIC, I am responsible for the simulation and integration of tracking disks based on μRWELL technology into the simulation framework. I also take part in beam tests and data analysis for μRWELL prototypes. I have developed the analysis software and coordinate the data analysis for the beam tests. In addition, I contribute to generic detector RD efforts at EIC, particularly to the development of a novel glass-based scintillating material (SciGlass) for use in homogeneous calorimeters. I have led the characterization campaigns of the first large-area samples and supervised student work on this topic.