Luca Boccioli

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Education

Ph.D. Candidate in Physics, University of Notre Dame, IN 08/2017 - present
Advisor: Grant J. Mathews; Expected graduation date: May 2023
Thesis title: *Explodability of Core-Collapse Supernovae: Roles of Neutrino-driven Convection, the Nuclear Equation of State, and the Progenitor Structure*

M.A. in Physics, University of Perugia, Italy 10/2015 - 07/2017
110/110 *cum laude*
Thesis title: *The solar lithium abundance: a clue to understand weak interactions and hydrodynamical mechanisms in stars*
Advisor: Maurizio M. Busso

B.S. in Physics, University of Perugia, Italy 10/2012 - 09/2015
110/110 *cum laude*

Professional Experience

Co-Organizer of the "*2023 CeNAM Frontiers Meeting*"	Michigan State University, MI	05/2023
Session Chair at the "*2023 CeNAM Frontiers Meeting*"	Michigan State University, MI	05/2023
Session Chair at the "*Key Reactions in Nuc. Astro.*	ECT* - Trento, IT (virtual)	06/2021
Co-Organizer of the "*Midwest Relativity Meeting*"	University of Notre Dame, IN	10/2020

Research Experience

ORISE Graduate Researcher at ORNL, Oak Ridge National Lab, TN 09/2019 - 12/2019

Grants, Honors & Awards

Outstanding Graduate Student Teacher Award	03/2022
Winner of 3MT Qualification Round	09/2021
ANPhA & AAPPS-DNP Award for Young Scientists (Best poster at NIC XVI)	09/2021
Graduate Student Union, Conference Presentation Travel Grant	04/2019
Division of Astrophysics Student Travel Grant for the 2019 APS April Meeting	02/2019
Graduate Student Professional Development Award	05/2018
Young Researchers Support for Nuclei in the Cosmos XV	05/2018

Publications

Boccioli, L., Roberti, L., Limongi, M., Mathews, G. J, Chieffi, A. *Explosion mechanism of core-collapse supernovae: role of the Si/O interface* (2023), ApJ, 949, 17

Boccioli, L., Mathews, G. J., Suh, I., O'Connor, E. P. *Effect of the Nuclear Equation of State on Relativistic-Turbulence Induced Core-Collapse Supernovae* (2022), ApJ 926, 147

Boccioli, L., Mathews, G. J., O'Connor, E. P. *General Relativistic Neutrino-Driven Turbulence in One-Dimensional Core-Collapse Supernovae* (2021), ApJ 912, 29

Pizzone, R. G., ..., **Boccioli, L.**, ... *Indirect measurement of the* $^3He(n,p)^3H$ *reaction cross section at Big Bang energies* (2020), Eur. Phys. J. A 56, 199

Mathews, G. J., **Boccioli, L.**, Hidaka, J., Kajino, T. *New Insights into Uncertainties in the Relic Neutrino Background and Effects from the Nuclear Equation of State* (2020), MPLA 35, 25

Presentations

Invited Talks

CIERA, Northwestern University, (Evanston, IL)	05/2023
SNEWS2.0 collaboration meeting (Purdue University, IN)	08/2022

Astrophysics Seminar (Notre Dame, IN) 04/2019
University of Perugia, Italy 06/2018

Contributed Talks

CeNAM Frontiers in Nuclear Astrophysics (FRIB, East Lansing, MI) 05/2023
APS April meeting (Minneapolis, MN) 04/2023
Workshop 3D Supernova (Remnants) (Valencia, Spain) 09/2022
13th Torino workshop (Perugia, Italy) 06/2022
JINA-CEE Frontiers in Nuclear Astrophysics (South Bend, IN) 05/2022
APS April meeting (New York City, NY) 04/2022
APS DNP meeting (Virtual) 10/2021
Marcel-Grossman meeting (Virtual) 07/2021
American Physical Society meeting (Virtual) 04/2021
Midwest Relativity Meeting (University of Notre Dame, IN) 10/2020
American Physical Society meeting (Denver, CO) 04/2019

Posters

Nuclei in the Cosmos XVI (Virtual) 09/2021
JINA-CEE Frontiers meeting (Michigan State University, MI) 05/2019
Colleges of Science & Engineering Joint Annual Meeting (University of Notre Dame, IN) 12/2018

Workshops & Schools

Life and Death: From Stars to Compact Objects 08/2022
iCERM: Advances and Challenges in Computational Relativity 09/2020
FRIB-TA Summer School: Dense matter in Astrophysics 06/2020
JINA Frontiers meeting Junior Researchers workshop 05/2019
Nuclei in the Cosmos XV Satellite School 06/2018

Teaching Experience

Main instructor for "Computational Lab in QM", University of Notre Dame 01/2023 - 05/2023
Grading, tutoring, and Lab TA experience, University of Notre Dame 08/2017 - 12/2021
Main instructor for "Computational Lab in QM", University of Notre Dame 02/2021 - 05/2021
Co-instructor for "Computational Lab in QM", University of Notre Dame 01/2020 - 05/2020
Tutoring experience, University of Perugia 01/2016 - 06/2017

Outreach and Service

Member of Graduate Student Faculty Search Advisory Committee (UND) Spring 2022
Science Alive at the public library: annual ExPAND outreach event 02/2019

Skills

Computational Experience

Advanced experience: Python, Fortran, HPC
Moderate experience: C/C++, Matlab, Bash

Languages

Italian (native), English (fluent), Spanish (basic), French (basic)