

Luca Boccioli

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Research Positions

Postdoctoral Researcher	UC Berkeley, CA	09/2023 - present
ORISE Graduate Researcher	Oak Ridge National Lab, TN	09/2019 - 12/2019

Education

Ph.D. in Physics, University of Notre Dame, IN Advisor: Grant J. Mathews; Thesis title: <i>Explodability of Core-Collapse Supernovae: Roles of Neutrino-driven Convection, the Nuclear Equation of State, and the Progenitor Structure</i>	08/2017 - 08/2023
M.A. in Physics, University of Perugia, Italy 110/110 <i>cum laude</i> Thesis title: <i>The solar lithium abundance: a clue to understand weak interactions and hydrodynamical mechanisms in stars</i> Advisor: Maurizio M. Busso	10/2015 - 07/2017
B.S. in Physics, University of Perugia, Italy 110/110 <i>cum laude</i>	10/2012 - 09/2015

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
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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 $^3\text{He}(n,p)^3\text{H}$ 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

International Conference & Workshop Presentations

Invited

SNEWS2.0 collaboration meeting (Purdue University, IN) 08/2022

Contributed

ZTF Theory Network Meeting (Santa Margarita, CA) 09/2023
MICRA 2023 (ECT*, Trento, Italy) 09/2023
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

Invited Seminars/Colloquia

Florida State University (Tallahassee, FL) 09/2023
CIERA, Northwestern University (Evanston, IL) 05/2023
SNEWS2.0 collaboration meeting (Purdue University, IN) 08/2022
Astrophysics Seminar (University of Notre Dame, IN) 04/2019
Astrophysics Seminar (University of Perugia, Italy) 06/2018

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)