

EDUCATION

- PhD Physics**, Massachusetts Institute of Technology, Cambridge MA (USA) 2025 -
 • Graduate student at the MIT Center for Theoretical Physics - a Leinweber Institute
- B. Sc. Physics**, Technical University of Munich, Garching (Germany) 2021 - 2025
 • Passed with distinction
 • Thesis: *Neural Network Parametrisation of Generalised Wilson Loops in Lattice QCD*
 • Supervisor: Nora Brambilla

INTERNSHIPS

- Internship**, Nicolaus Copernicus Astronomical Center, Warsaw (Poland) Aug - Oct 2023
 • Project title: *Chemical abundances in a planet-host star of the Praesepe open cluster*
 • Supervisor: Rodolfo Smiljanic
- Internship**, Max Planck Institute for Astrophysics, Garching (Germany) Sep - Oct 2022
 • I continued working on this project with my supervisor until July 2023, and co-authored two papers [1, 2].
 • Supervisor: Enrico Garaldi

PAST RESEARCH PROJECTS

- Neural network optimization of the lattice computation of the $q\bar{q}$ potential** Apr - Sep 2024
 • Implementation of a neural network that finds an optimized operator to compute the $q\bar{q}$ potential on the lattice
 • The operator used for the computation is a superposition of Wilson loops, where the coefficients of the terms in the superposition are determined during the training process of the neural network
- Chemical abundances in a planet-host star of the Praesepe open cluster** Aug - Oct 2023
 • Determination of abundances of several chemical abundances in the atmosphere of three main sequence stars in the Praesepe open cluster using stellar high resolution spectra
 • Study of the possible correlation between the abundances of refractory and volatile elements in the stellar atmosphere and the existence of planets around the star
- Galaxy-IGM correlations in the Thesan simulations** [1, 2] Sep 2022 - Jul 2023
 • Study of the Galaxy–Lyman- α cross-correlation in the Thesan simulations (cosmological radiation-hydrodynamic simulations of the Epoch of Reionization)
 • Study of the relationship between the optical depth along lines of sights and the distribution of galaxies around them using data from the Thesan simulations

HONORS, FELLOWSHIPS, AND AWARDS

- MIT physics graduate fellowship** Covers tuition fees and salary for one year (\approx \$ 120,000) 2025
- Distinction** for undergraduate performance at the Technical University of Munich 2025
- Female physicist of the week** Featured on the social media channels of the German Physical Society 2025
- DAAD RISE worldwide scholarship** Full funding for a research internship abroad (€1984) 2023
- Deutschlandstipendium** Germany's national scholarship (€3600) 2021

TEACHING

Teaching Assistant, Technical University of Munich, Garching (Germany)

2023 - 2025

- **Tasks:** Lead weekly 90 min. tutorials for 15-20 undergraduate students, graded homework and exams
- **Courses:** Winter 2024/25: Introduction to Scientific Programming (IN8008) *Ø1.5 tutorials per week*
 Summer 2024: Theoretical Physics 1: Classical Mechanics (PH0005)
 Winter 2023/24: Theoretical Physics 2: Electrodynamics (PH0006)

SUMMER SCHOOLS

Dark Matter and the Cosmos

Summer school by TU Munich, FAU, and the University of Stuttgart

2022

SKILLS

Programming: C++, Python (incl. PyTorch), Bash, basic knowledge of Mathematica

Languages: English (C2), German (native speaker)

PUBLICATIONS

[1]

E. Garaldi, **V. Bellscheidt**, A. Smith, and R. Kannan. *The galaxy-IGM connection in THESAN: the physics connecting the IGM Lyman- α opacity and galaxy density in the reionization epoch*. 2025. arXiv: [2410.02853](https://arxiv.org/abs/2410.02853) [[astro-ph.CO](#)]. URL: <https://arxiv.org/abs/2410.02853>.

Submitted for publication.....

[2]

E. Garaldi and **V. Bellscheidt**. “The galaxy-IGM connection in THESAN: observability and information content of the galaxy-Lyman- α cross-correlation at $z\geq 6$ ”. In: (Oct. 2024). arXiv: [2410.02850](https://arxiv.org/abs/2410.02850) [[astro-ph.CO](#)].