

Teodora-Elena Bulichi

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Curriculum Vitae

Web: tbulichi.github.io

PhD candidate, MIT Department of Physics, Astrophysics Division. Working on constraining the growth of early supermassive black holes, using primarily mid-infrared observations from the *James Webb Space Telescope* and radiation-hydrodynamical simulations I have developed during my PhD.

EDUCATION

Massachusetts Institute of Technology 2023-present

PhD thesis: "Unveiling early supermassive black hole growth with JWST and simulations"

PhD supervisor: Prof. Anna-Christina Eilers

The University of Edinburgh 2018-2023

MPhys Astrophysics, First Class Honours

MPhys thesis: "Galaxy properties in the cosmic web"

MPhys supervisor: Prof. Romeel Davé

Bachelors thesis: "Stochastic effects in initial mass function sampling for Population III stars"

Bachelors supervisor: Prof. Sadegh Khochfar

AWARDS AND GRANTS

- Frank Graduate Fellowship, MIT Department of Physics 2023-2024
- LEAPS summer program, European Space Agency 2022
- Carnegie Scholarship, Carnegie Foundation, Edinburgh (*declined*) 2022
- Cormack Vacation Scholarship, Royal Society of Edinburgh 2021
- Edinburgh Award, The University of Edinburgh 2020, 2021
- Pre-Honors Certificate of Merit, The University of Edinburgh 2019, 2020

PUBLICATIONS

7 publications, 4 as first author, 1 as second author:  ADS library  ORCID

1. **T-E. Bulichi**, G. C. K. Leung, A-C. Eilers, P. G. Pérez-González, G. Barro, S. L. Finkelstein, M. B. Bagley, A. M. Koekemoer, B. E. Backhaus, M. Dickinson, N. A. Grogin, D. D. Kocevski, R. A. Lucas, F. Pacucci, N. Pirzkal, E. Pizzati, J-T. Schindler, A. Traina, G. Yang: *MEOW: The increase in the obscured AGN fraction in mid-infrared from $0 \leq z \leq 6$ with JWST MIRI* eprint arXiv:2603.22393
2. **T-E. Bulichi**, O. Zier, A. Smith, M. Vogelsberger, A-C. Eilers, R. Kannan, X. Shen, E. Puchwein, E. Garaldi, J. Borrow: *High-redshift AGN population in radiation hydrodynamics simulations* 2025, MNRAS, 544, 355
3. **T-E. Bulichi**, R. Davé, K. Kraljic: *How galaxy properties vary with filament proximity in the Simba simulations* 2024, MNRAS, 529, 2595
4. **T-E. Bulichi**, K. Fahrion, F. Mernier, M. Hilker, M. Lyubenova, O. Müller, N. Neumayer, I. Martin Navarro, F. Pinna, M. Rejkuba, L. Scholz-Diaz, and G. van de Ven: *Expanding on the fundamental metallicity relation with dwarf galaxies and MUSE* 2023, A&A 679, A98

5. K. Fahrion, **T-E. Bulichi**, M. Hilker, R. Leaman, M. Lyubenova, O. Müller, N. Neumayer, F. Pinna, M. Rejkuba, G. van de Ven: *Nuclear star cluster formation in star forming dwarf galaxies* 2022, A&A, 667, A101
6. O. Zier, A. Smith, X. Shen, R. Liu, R. Kannan, S. M. Koehler, V. Springel, R. Pakmor, M. Vogelsberger, **T-E. Bulichi**, L. Hernquist: *Introducing the Lumina project: large-volume radiation-hydrodynamic simulations of the epochs of hydrogen and helium reionization* eprint arXiv:2605.15310
7. X. Shen, O. Zier, A. Smith, R. Liu, R. Kannan, **T-E. Bulichi**, S. M. Koehler, V. Springel, M. Vogelsberger, L. Hernquist, R. P. Naidu, A. de Graff, E. Pizzati, D. M. Alexander, L. C. Ho, V. Kokorev, G. Leung, A-C. Eilers, R. C. Hickox: *The Lumina Project: The Demographics of Active Galactic Nuclei from Quasars to Little Red Dots at $z \gtrsim 3$* eprint arXiv:2605.24112

TALKS AND POSTERS

- Supermassive Black Holes and Blue Notes, Montreal (*poster*) 2026
- The Multiscale Environment of AGN Across Cosmic Time, Ringberg (*invited talk*) 2025
- Astronomy Seminar, Tufts University (*invited talk*) 2025
- Saas-Fee Winter School (*poster*) 2025
- Thesan Workshop, Leibniz Institute for Astrophysics Potsdam (*contributed talk*) 2024
- Summer Seminar, Leiden Observatory (*contributed talk*) 2022
- Cormack Meeting, The University of Edinburgh (*poster*) 2021

MENTORING

- MIT Undergraduate Research Opportunities Program, co-supervisor for Padma Ramesh 2026
- MIT Physics Grads Advising Grad Admissions, mentor for graduate school applicants 2024,2025
- Caledonia Tutors, tutor for UK A-levels 2021-2023
- The University of Edinburgh, Math Buddies, mentor for first year undergraduates 2019-2020

TEACHING AND OUTREACH

- MIT Astrogazers, member 2024-present
- MIT undergraduate Classical Mechanics, teaching assistant (*teaching evaluations: 6.7/7*) 2024
- The University of Edinburgh Physics Outreach Team, coordinator 2019-2023

DEPARTMENTAL AND COMMUNITY SERVICE

- MIT Physics Graduate Students Council, pizza social co-chair 2025-present
- MIT Romanian Student Association, treasurer 2025-present
- MIT Kavli Institute, graduate student lunch co-organiser 2025-present
- MIT Physics Grads Advising Grad Admissions, member 2024-2025
- The University of Edinburgh, Physics & Astronomy Department, website developer 2020
- Edinburgh Residence Life, resident assistant 2019-2023