Luca Tortorelli
Curriculum Vitae

Personal information

Family Name: Tortorelli
First Name: Luca
Affiliation: University Observatory Munich, Ludwig-Maximilians University (LMU) Munich, Scheinerstr. 1, 81679, Munich, Germany
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Github: https://github.com/torluca
Outreach page: https://www.geopop.it/author/lucatortorelli/

Education

Ph.D.:
- Institution: Institute for Particle Physics and Astrophysics, ETH Zurich, Switzerland, 09/2016 - 07/2021.
- Thesis title: "Measurement of galaxy population properties with forward-modeling and Approximate Bayesian computation".
- Advisors: Prof. Dr. Alexandre Refregier & Prof. Dr. Adam Amara.

Master's Degree:
- Institution: Dipartimento di Fisica "Ettore Pancini", Universitá degli Studi di Napoli "Federico II", Italy 10/2013 - 07/2016, Summa cum Laude.
- Thesis title: "The Kormendy relation of galaxies in clusters of the CLASH-VLT survey".
- Advisors: Prof. Dr. Amata Mercurio & Prof. Dr. Maurizio Paolillo.

Bachelor's Degree:
- Institution: Dipartimento di Fisica "Ettore Pancini", Universitá degli Studi di Napoli "Federico II", Italy, 10/2009 - 06/2013, Summa cum Laude.
- Thesis title: "Ellipticity Measurements in KiDS Survey Images Aimed at The Study of Gravitational Lensing".
- Advisors: Prof. Dr. Massimo Capaccioli & Prof. Dr. Nicola Napolitano.

Research career

Current position

Name and Address of the Employer: Prof. Dr. Daniel Gruen, Universitaet Sternwarte der Ludwigs-Maximilians-Universitaet Muenchen, Scheinerstr. 1, 81679, Munich, Germany
Start and End Dates of the Contract: 10/2021 - Present
Professional Status: Post-doctoral Researcher

Employment history

03/2023-Present: Freelance science outreach writer at "Geopop", Milan, Italy
10/2021-Present: Post-doctoral researcher, Universitaet Sternwarte Muenchen, Germany
09/2016 - 09/2021: Ph.D. student, Institute for Particle Physics and Astrophysics, ETH Zürich, Switzerland
09/2015 - 12/2016: INAF Associate, INAF Osservatorio Astronomico di Capodimonte, Italy
09/2012 - 12/2012: Didactic laboratory technician and Library Assistant, Dipartimento di Fisica "Ettore Pancini", Universitá degli Studi di Napoli "Federico II", Italy

Research interests

Galaxies: population: forward-modelling of galaxy population in wide-field photometric and spectroscopic surveys, stellar population synthesis.
Galaxies: clusters: scaling relations and stellar populations of early-type galaxies in clusters at intermediate redshifts.
Methods: experience in analysis of photometric and spectroscopic data.
Methods: statistical: forward-modeling, Approximate Bayesian computation, 2D parametric galaxy light profile fitting, full-spectral fitting and SED fitting.

Observing experience

Observing nights: 05/2019, William Herschel Telescope, PAUCam, 4n.
Observing nights: 03/2018, William Herschel Telescope, PAUCam, 3n.
Observing proposal: ESO 0102.A-0640, UT4-Yepun, MUSE, 12h, Co-I.
Observing proposal: ESO 0101.A-0470, VST, OMEGACAM, 48h, Co-I.
Observing proposal: ESO 099.B-0242, UT4-Yepun, MUSE, 1n, Co-I.
Data reduction: basic experience with the ESO data reduction pipeline for the MUSE instrument.

Collaborations membership

4MOST Science collaboration, 08/2022 - Present.
Dark Energy Spectroscopic Instrument Science collaboration, 08/2022 - Present.
Dark Enegy Science collaboration (DESC-LSST), 10/2021 - Present.
PAU Survey collaboration, P.I. E. Gaztanaga, 03/2017 - Present.
CLASH-VLT collaboration, P.I. Piero Rosati, 09/2015 - Present.

Computing experience

High performance computing: ability to design and run multi-cores parallel jobs on high performance computing facilities.
Python language: advanced experience acquired during every day research work and analysis and modelling of astronomical data.
Github/Gitlab: advanced experience in git repo control acquired during everyday research work.
PyTorch: advance experience in using PyTorch acquired during everyday research work. **C,C++:** basic experience acquired during university courses.
SQL: basic experience.
Common astronomical softwares: advance experience in using GALFIT, GALFITM, Source Extractor,SCAMP,SWarp, DrizzlePac,PyRAF,TOPCAT,Astropy,photutils, pPXF, Python-FSPS, Prospector, CIGALE.

Teaching and mentoring

Physics and Astrophysics courses

"Modern statistics of galaxies" seminar: advisor for Bachelor and Master's students presentation on latest research topics, University Observatory Munich, LMU Munich, 10/2021 - Present.
"Astrophysical Lab" class: design and supervision of "galaxy evolution" experiment for Bachelor and Master's students, University Observatory Munich, LMU Munich, 10/2022 - Present.
"Observational Methods for Galaxy Surveys" class: co-lecturer and exercise class head, University Observatory Munich, LMU Munich, 04/2022 - 07/2023.
"Astrophysical Lab" class: supervision of "interferometry" experiment for Bachelor and Master's students, University Observatory Munich, LMU Munich, 04/2022 - 07/2022.
"Astrophysical Lab" class: supervision of "planetary nebulae" experiment for Bachelor and Master's students, University Observatory Munich, LMU Munich, 10/2021 - 01/2022.
"Cosmological Probes" class: co-lecturer and exercise class head, ETH Zürich, 09/2020 - 12/2020.
"Advanced Astrophysics Laboratory" class: telescope operator, co-lecturer, design of telescope manual, supervision of Master's students lab classes, ETH Zürich, 09/2017 - 08/2020.
"Beginners Physics Laboratory" class: supervision of basic physics experiment for Bachelor's students, ETH Zürich, 09/2016 - 05/2017.

Student supervision

Semester project: Celine Nussbaumer, ETH Zurich, 10/2024 -Present.
Master's thesis: Jizhao Qin, University Observatory Munich, LMU Munich, 06/2024-Present.
Bachelor's thesis: Johanna Glueck, University Observatory Munich, LMU Munich 03/2024 - 07/2024.
Bachelor's thesis: Elsa Dejby, University Observatory Munich, LMU Munich 03/2024 - 07/2024.
Master's thesis: Benjamin Csizi, University Observatory Munich, LMU Munich, 10/2021 - 08/2022.
Bachelor's thesis: Paulina Contreras, University Observatory Munich, LMU Munich 04/2021 - 08/2022.
Semester project: Michael Blanc, ETH Zürich, 09/2020 - 12/2020.
Semester project: Pascal Hitz, ETH Zürich, 03/2020 - 06/2020.
Observational project: support students' observation at the ETH Zürich student telescope for observations of exoplanets, press release, ETH Zürich, 10/2019.
Master's thesisr: Peter Strattman, ETH Zürich, 03/2019 - 09/2019.
Semester project: Beatrice Moser, ETH Zürich, 03/2018 - 06/2018.

Teaching material

"Astrophysical Lab" manual: designed and wrote the manual of a new experiment on "Measuring the star-forming main sequence of COSMOS galaxies", University Observatory Munich, LMU Munich.
"VP ASL-Astro HPP Telescope" manual: designed and wrote the manual for the 50 cm student telescope at ETH Zürich, ETH Zürich.
"VP ASL-Astro HPP Telescope" data redcution manual: designed and wrote the data reduction manual for the 50 cm student telescope at ETH Zürich, ETH Zürich.

Outreach

Science outreach writer: authored more than 160 outreach articles on space and astronomy for the leading italian outreach platform "Geopop", Milan, Italy.
Outreach experiments: "ETH Scientifica", ETH Zürich, Zürich, Switzerland, 09/2017.
Outreach experiments: "Cittá della Scienza", Naples, Italy, 05/2015.
Outreach experiments: "Astrokids", INAF Osservatorio Astronomico di Capodimonte, Naples, Italy, 04/2015.
Outreach experiments: "MSC Lirica Cruise", Italy, 10/2014.
Outreach experiments: "Cittá della Scienza", Naples, Italy, 05/2014.
Outreach experiments: "European Researcher's Night", INAF Osservatorio Astronomico di Capodimonte, Naples, Italy, 09/2013.
Outreach experiments: "Cittá della Scienza", Naples, Italy, 05/2013.

Languages

Italian: Mothertongue
English: Very fluent, used in everyday research work.
French: basic understanding.
German: basic understanding.