

### 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/lucatoriorelli/>

### 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", Università 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", Università 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.

### Publication list

**ADS library:** <https://ui.adsabs.harvard.edu/public-libraries/QxeQDRpHRCiAYWTKVLvgmA>

### 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", Università 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 Energy 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](#).

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## 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 thesis:** 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 reduction 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:** "Città 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:** "Città della Scienza", Naples, Italy, 05/2014.

**Outreach experiments:** "European Researcher's Night", INAF Osservatorio Astronomico di Capodimonte, Naples, Italy, 09/2013.

**Outreach experiments:** "Città della Scienza", Naples, Italy, 05/2013.

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## Languages

**Italian:** Mother tongue

**English:** Very fluent, used in everyday research work.

**French:** basic understanding.

**German:** basic understanding.