

Spoken languages: Italian (mother tongue), French (C2 level, DALF certificate),  
English (Professional usage)

Current Position: ARC Fellow, Amaldi Research Center, La Sapienza University of Rome

Web page: <https://www.linkedin.com/in/lgastro>

Web page: [https://www.researchgate.net/profile/Luca\\_Graziani](https://www.researchgate.net/profile/Luca_Graziani)

Zenodo Repository: [www.zenodo.org/search?page=1&size=20&q=%22Luca%20Graziani%22](http://www.zenodo.org/search?page=1&size=20&q=%22Luca%20Graziani%22)

## Education/Academic records

**PhD / Dr. rer. nat. in Astronomy and Astrophysics** April 2012

Ludwig Maximilian University of Munich (LMU)

Max Planck Institute for Astrophysics, Garching, Germany.

Ph.D. Thesis: Cosmological radiative transfer through metals in CRASH.

Final Marks: 1.3/1 German scores, Magna cum Laude

Supervisors: Prof. Simon White and Dr. Benedetta Ciardi.

Available at: <http://edoc.ub.uni-muenchen.de/14935/>

doi:10.5281/zenodo.1495252

**International Max Planck Research School (IMPRS) on Astrophysics** April 2012

Max Planck Institute for Astrophysics (MPA) Garching - Germany.

**Master of Science in Physics and Astrophysics** Dec. 2008

(Laurea Specialistica in Scienze fisiche e Astrofisiche 20s)

Astrophysics and Space Science Dept., University of Florence - Italy

M.Sc. Thesis: Radiative transfer in dusty protoplanetary disks.

(Il trasporto della radiazione nei dischi protoplanetari: il ruolo della polvere.)

Final Marks: 110/110 Italian scores

Supervisor: Prof. Egidio Landi degli Innocenti and Prof. Santi Aiello.

doi:10.5281/zenodo.1495276

**Bachelor of Science in Physics** Dec. 2005

(Laurea Triennale in Scienze fisiche 25s)

Physics Dept., University of Pisa - Italy

B.Sc. Thesis: Numerical methods in Planetary System Dynamics.

(Metodi numerici per la soluzione di problemi di dinamica planetaria.)

Supervisor: Prof. P. Paolicchi.

**DALF – Diplôme approfondi de langue française – CEF Level: C2,** Dec. 2002

République française – Ministère de l'éducation nationale - France.

**DELF – Diplôme d'études en langue française.,** Dec. 2001

République française – Ministère de l'éducation nationale - France.

**Scientific High-School Diploma (Maturità Scientifica),** Dec. 1992

High School "Galileo Galilei", Macerata - - Italy.

Final Marks: 60/60 Italian scores

## PhD Schools and Advanced Schools

<b>KROME bootcamp PhD computational school</b> University of Goettingen - Germany.	2014
<b>5th Heidelberg IMPRS Summer School: First Stars and Cosmic Reionization</b> International Max Planck Research School for Astronomy and Cosmic Physics, University of Heidelberg - Germany.	2010
<b>EU/US PhD Summer School on HPC Challenges in Computational Sciences</b> Acireale - Italy. DEISA and TeraGrid – Europe USA – <b>DEISA Grant Fellow</b>	2010
<b>School on parallel computing XVI</b> CINECA - Bologna - Italy.	2007
<b>Advanced school on parallel computing III</b> CINECA - Bologna - Italy.	2007
<b>Summer School on Scientific Visualization VII</b> CINECA - Bologna - Italy.	2007 2007
<b>MPI and OpenMP Programming courses</b> CINECA Supercomputing dept., Bologna - Italy	2003

## Post-Doctoral Research (~ 7.5 yrs)

<b>ARC Fellow</b> Amaldi Research Center, La Sapienza University of Rome, Physics dept. <b>Research topics:</b> Multi-Messenger Astronomy, Binary Black Hole formation and coalescence sites Galaxy Formation models in Local Group, Dust formation and evolution, Radiative Transfer through cosmic dust, Reionization, SPH schemes, QSOs formation and evolution and environments.	May 2019 - current
<b>Research Collaborator / PostDoc Researcher</b> University of Rome, La Sapienza, Physics dept. <b>Research topics:</b> Radiative transfer, Reionization, Galaxy Formation models in Local Group, Dust formation and evolution, Radiative Transfer through cosmic dust, SPH schemes, QSOs formation and evolution, QSO environments.	September 2018 - April 2019
<b>Assegnista di ricerca / PostDoc Researcher (1 yrs)</b> Scuola Normale Superiore di Pisa, Cosmology Group. <b>Research topics:</b> Radiative transfer, Reionization, Galaxy Formation models in Local Group, Dust formation and evolution, Radiative Transfer through cosmic dust, SPH schemes, QSOs formation and evolution, QSO environments.	July 2017 - July 2018

**Young Scientist** (3 yrs)

June 2014 - May 2017

ERC funded project FIRST.

INAF, Osservatorio Astronomico di Roma (OAR).

**Research topics:** Radiative transfer, Reionization, Galaxy Formation models in Local Group, Dust formation and evolution, Radiative Transfer through cosmic dust, SPH schemes.

**Research Fellow** (4 months)

November 2013 - February 2014

ERC funded project FIRST.

INAF, Osservatorio Astronomico di Roma (OAR).

**Research topics:** Radiative transfer, Reionization, Galaxy Formation models in Local Group.

**DFG Post-doctoral researcher** (1.5 yrs)

April 2012 - October 2013

Priority Program 1573: Physics of the Interstellar Medium.

Max Planck Institute of Astrophysics (MPA), Garching, Germany

**Research topics:** Radiative transfer, Reionization, X-Rays physics, QSOs, Metals in IGM, AMR schemes.

## International collaborations

**2019 LISA mission: Astrophysics Working Group**

Available at: <https://www.lisamission.org/>

**2019 Theseus mission: SWG1 group**

Available at: <http://isdc.unige.ch/theseus/>

**2019 Rebels collaboration: "Reionization Era Bright Emission Line Survey"**

Available at: <https://sites.google.com/site/rebelswiki/>

**2019 SPICA mission: Galaxy evolution working group**

Available at: <http://spica-mission.org/>

**2019 SKA Telescope. CD/EoR Science group**

Available at: <https://www.skatelescope.org/>

**2019 PRIN-SKA: "Empowering SKA as a probe of galaxy evolution with HI"**

Available at: [http://cosmos.lambrate.inaf.it/eskape\\_wiki/](http://cosmos.lambrate.inaf.it/eskape_wiki/) EskapeGroup

**2018 LISA ASTRO-Black ITALY**

Available at: [www.lisamission.org](http://www.lisamission.org)

**RDA: Research data alliance**

Available at: <https://www.rd-alliance.org/>

**EuroScience Members and Conferences Platform (ESCMP)**

Available at: <https://www.euroscience.org/>

## Visiting and long term scientific programs

<b>Galaxy Evolution in a New Era of HI Surveys -MIAPP (2 weeks)</b> Excellence Cluster 'Universe' MIAPP Germany	July-August 2019
<b>University of Southampton -Visiting fellow</b> The University of Southampton, Southampton, United Kingdom	Dec 2019 - present
<b>The cold universe program -Visitor (1.5 Months)</b> KITP Kavli Institute for theoretical physics, Santa Barbara, California, USA	June 2016
<b>Scuola Normale Superiore -Ext. Sci. Collaborator</b> Scuola Normale Superiore, Pisa, Italy	May 2016
<b>Scuola Normale Superiore -Visitor (3 Months)</b> Scuola Normale Superiore, Pisa, Italy	Mar. 2014
<b>School of Physics, Cosmology Group -Visitor (3 weeks)</b> University of Melbourne, School of Physics, Melbourne, Australia.	Dec. 2012
<b>Harish-Chandra Research Institute (HRI) -Visitor (2 weeks)</b> Harish-Chandra Research Institute (HRI), Allahabad, India.	Feb. 2010

### Student supervision (6 Ph.D.; 5 M.Sc.)

#### PhD student Co-supervision:

- Co-supervision of **Martin Glatzle (PhD student)**. 2016-2020  
MPA and TUM University Munich, Germany.  
**Project:** Radiative Transfer through dust in CRASH.
- Co-supervision with R. Schneider of **Michele Ginolfi (PhD student)**. 2015-2017  
La Sapienza University, Roma.  
**Project:** PhD thesis - sub-project: Properties of dusty, Local Group galaxies with GAMESH.
- Co-supervision with R. Schneider of **Matteo de Bennassuti (PhD student)**. 2015-2016  
La Sapienza University, Roma.  
**Project:** PhD thesis: Properties of Milky way progenitors with GAMESH.
- Co-supervision with R. Schneider of **Mattia Mancini (PhD student)**. 2014-2017  
La Sapienza University, Roma.  
**Project:** Properties of High redshift dusty Galaxies.
- Co-supervision with B. Ciardi of **Koki Kakiichi (PhD student)** . 2013-2016  
Astronomy LMU/IMPRS student.  
**Project:** Cosmological Reionisation probed by Lyman alpha line RT and quasars.
- Co-supervision with B. Ciardi of **Nitya Hariharan (PhD student)**. 2012-2015  
Informatics V — Scientific Computing at TUM/IMPRS student.  
**Project:** Numerical developments in CRASH. AMR, MPI parallelisation, integration with gas dynamics.

#### MSc Supervision:

- Supervision of **Martin Glatzle (M.Sc. student)**. 2015-2016  
TUM University Munich, Germany.  
**Project:** M.Sc. Thesis: Radiative transfer through dust in CRASH.
- Supervision of **Nima Shahriari (M.Sc. student)**. 2011-2011  
TUM University Munich, Germany. M.Sc. Internship at MPA.  
**Project:** Development of a VTK 3D Visualisation System for CRASH reionisation simulations.

#### MsC Co-Supervision:

- Co-Supervision with Prof. R. Schneider and Prof. Laura Pentericci of **Alessandra Venditti (M.Sc. student)**. 2020-2021  
La Sapienza university of Rome, Italy.  
**Project:** M.Sc. Thesis: Pop III star formation across the Universe.
- Co-Supervision with Prof. R. Schneider of **Massimiliano Parente (M.Sc. student)**. 2019-2020  
La Sapienza university of Rome, Italy.  
**Project:** M.Sc. Thesis: The spectral properties and observability of dusty galaxies in the Epoch of Reionization.
- Co-Supervision of **Alessandro Bonella (M.Sc. student)**. 2019  
La Sapienza, University of Rome.  
**Project:** M.Sc. Thesis: Dust formation in the ejecta of supernovae.

### International Conferences and Workshops (Invited: 4; Contributed: 23; Posters: 10)

- The rise of dust and metals, Marseille 2020, France (ONLINE). 2020  
**Contributed Talk.**
- Origin, growth and feedback of black holes in dwarf galaxies, San Sebastian, Spain (ONLINE). 2020
- The Epoch of Galaxy Quenching, KAVLY, Cambridge, UK (ONLINE). 2020
- NVIDIA HPC Summit Digital. 2020
- Rebels Collaboration virtual meeting. 2020
- SPICA Collaboration virtual meeting. 2020
- LISA ASTRO-BLACK ITALY, Milano, Italy. 2019
- ESO, Garching bei Muenchen, Germany. 2019  
**ESO conference:** Nine Billion Years of Neutral Gas Evolution invited with MIAPP Program.
- Extremely Big Eyes on the Early Universe, Accademia dei Lincei, Roma, Italy. 2019  
**Contributed Talk.**
- First structures First galaxies, Institut d' Astrophysique de Paris, Paris, France. 2019  
**Contributed Talk.**
- Fundamental Physics with LISA, Galileo Galilei Institute for Theoretical Physics, Firenze, Italy. 2018  
**LISA Workshop series.**

- INAF-Osservatorio Astronomico di Firenze, Firenze, Italy. 2018  
**Institute Seminar Talk:** Models of galaxy formation with chemical and radiative feedback.  
doi:10.5281/zenodo.1495124
- Gravity@Malta2018, Malta. 2018  
**Poster Contribution:** GAMESH and coalescence sites of GW-like events.  
doi:10.5281/zenodo.1495228
- Rise and Shine 2018, Strasbourg, France. 2018  
**Contributed Talk:** Ionizing radiation from high redshift dusty galaxies.  
doi:10.5281/zenodo.1495224
- Massive black holes in evolving galaxies, IAP Paris, France. 2018  
**Poster Contribution:** X-rays ionization and heating by high-z QSOs.  
doi:10.5281/zenodo.1495089
- Francescos legacy: star formation in space and time, Firenze, Italy. 2017  
**Poster Contribution:** Star formation through cosmic space and time  
as traced by Milky Way progenitors .  
doi: 10.5281/zenodo.1495081
- 3rd YAGN meeting, CEFCA - Teruel, Spain. 2017  
**Contributed Talk:** Feedback from QSOs in the high-z Universe.  
doi:10.5281/zenodo.1495220
- CLUES Meeting, Madrid, Spain. 2017  
**Contributed Talk:** GAMESH and CLUES projects.  
doi:10.5281/zenodo.1495193
- GEE5 Meeting: Galaxy Evolution and environment, Firenze, Italy. 2017  
**Contributed/Section Review Talk:** Star formation and  
Galaxy evolution as traced through cosmic space and time.  
doi: 10.5281/zenodo.1495172
- Cosmic Reionisation, MIPP, Muenchen, Germany. 2016  
**Invited Talk:** Radiative feedback with CRASH4 and its applications.  
doi: 10.5281/zenodo.1495185
- From wall to Web, Max Planck Society, MPG, Berlin, Germany. 2016  
**Contributed Talk:** X-ray ionization of the intergalactic medium by quasars.
- Molecules and dust as fuel to star formation, KITP, Santa Barbara (CA), USA. 2016  
**Poster Contribution:** Cosmological galaxy formation simulations with dust.  
doi:10.5281/zenodo.1495077
- First stars V, Heidelberg, Germany. 2016  
**Contributed Talk:** The role of feedback in regulating star formation through cosmic times.  
doi: 10.5281/zenodo.1495133
- VIALACTEA: The Milky Way as star formation engine, Roma, Italy. 2016  
**Contributed Talk:** The formation of Milky Way under chemical and radiative feedback.
- Convegno INAF: Frontiere dell'astrofisica italiana, Roma, Italy 2015

- South by High redshift, University of Texas at Austin, USA. 2015  
**Contributed Talk:** Dust formation and evolution with dustyGadget.  
doi: 10.5281/zenodo.1494942  
**Poster Contribution:** Dust in early galaxies.
- AGN meeting, INAF, OAR, Roma, Italy. 2015  
**Contributed Talk:** CRASH and GAMESH as tools to study Reionization.  
doi:10.5281/zenodo.1494939
- First stars, galaxies, and black holes: Now and Then, Groningen, The Netherlands. 2015  
**Contributed Talk:** Galaxy formation with chemical and radiative feedback.  
doi:10.5281/zenodo.1494956
- Advanced Workshop on Cosmological Structures from Reionization to Galaxies, ICTP, Trieste, Italy. 2015  
**Contributed Talk:** Galaxy formation with chemical and radiative feedback.
- The metal enrichment of diffuse gas in the Universe. Sexten, Italy. 2015  
**Invited Talk:** Radiative transfer through metals and dust.  
doi:10.5281/zenodo.1494960
- INAF ICT workshop, Cefalú, Italy. 2015  
**Contributed Talk:** ERC FIRST HPC-class Projects at INAFOAR.
- In the footsteps of galaxies 15, Soverato, Italy. 2015  
**Contributed Talk:** Galaxy formation with chemical and radiative feedback.  
doi:10.5281/zenodo.1495063
- Fellow day, INAF, Astronomical Observatory of Rome, Roma, Italy. 2014  
**Seminar:** Cosmological radiative transfer through metals and Universe reionisation.  
doi: 10.5281/zenodo.1494365
- PRACE Scientific and Industrial Conference 2014, Barcelona, Spain. 2014
- Workshop on exascale and PRACE prototypes, Barcelona, Spain. 2014
- EWASS 2014: European Week of Astronomy and Space Science, Geneva, Switzerland. 2014
- Intergalactic Interactions Workshop, The University of Edinburgh, Edinburgh, Scotland. 2013  
**Contributed Talk:** Cosmic UV background fluctuations at  $z \approx 3$  as traced by metal ions: radiative transfer effects.  
doi:10.5281/zenodo.1494357
- The University of Melbourne, School of Physics, Melbourne, Australia. 2013  
**Institute Seminar:** Radiative transfer with CRASH.  
doi:10.5281/zenodo.1494355
- Max Planck Institute for Astrophysics MPA, Garching 2013  
**Institute Seminar:** Cosmological radiative transfer through metals and the UV background at the epoch of helium reionisation.
- DAVID Workshop VII, Scuola Normale Superiore, Pisa, Italy. 2013  
**Contributed Talk:** Multi-band Radiative transfer with CRASH4  
doi:10.5281/zenodo.1494359

- Conference on Scientific Computing CSC2013, The Cyprus Institute, Paphos, Cyprus. 2013  
**Poster Contribution:** Parallel, multi-frequency-band cosmological radiative transfer with CRASH4 and its applications.
- The Epoch of Reionization: Theory - Simulations - Observations, Strasbourg, France. 2012
- Whereabouts, Physical State and Metallicity of the Missing Baryons in the Local Universe, Cervia, Italy. 2012  
**Contributed Talk:** CRASH3: Cosmological radiative transfer through metals.
- Planet Formation and Evolution 2012, Muenchen, Germany. 2012
- Introduction to large scale program development and debugging on SuperMUC with DDT. Leibniz-Rechenzentrum. Garching bei Muenchen, Germany. 2012
- DAVID Workshop VII, Scuola Normale Superiore, Pisa, Italy. 2012
- Cosmological Radiative Transfer Comparison Project Workshop IV, University of Texas, Austin, USA. 2012  
**Contributed Talk:** CRASH3. Cosmological radiative transfer through metals.  
doi: 10.5281/zenodo.1494347
- Cosmology/galaxy formation. University of Princeton, Princeton, USA. 2012  
**Cosmology Seminar:** Radiative transfer through metals with CRASH.
- New Horizons for High redshifts, Institute of Astronomy, University of Cambridge, UK. 2011  
**Poster Contribution:** Cosmological radiative transfer through metals in CRASH.  
doi:10.5281/zenodo.1494337
- Young and Bright: Understanding High Redshift Structures, Potsdam, Germany. 2011
- DAVID Workshop VI, Scuola Normale Superiore, Pisa, Italy. 2011  
**Contributed Talk:** MetalCRASH, radiative transfer through metals in CRASH.
- Cosmological Reionization HRI, Allahabad, India. 2010
- MPA Fachbeirat / Advisory Committee. 2010  
**Invited Talk:** Cosmological radiative transfer with CRASH.  
doi: 10.5281/zenodo.1494332
- 5th VI-HPS Tuning Workshop TUM/LRZ/MPG in Garching, Munchen, Germany. 2010
- The Chemical Enrichment of the Intergalactic Medium, Leiden, The Netherlands 2009
- DAVID Workshop IV, Florence, Italy. 2009  
**Contributed Talk:** Special CRASH release and tutorials for Davidians.  
doi:10.5281/zenodo.1494322
- IMPRS Selection Workshop. 2008  
**Contributed Talk:** Radiative transfer in protoplanetary disks.  
doi:10.5281/zenodo.1494264
- ISSOL08 XV International conference on the Origin of Life 2008, Florence, Italy. 2008  
**LOC Organising committee support.**
- EPSC2008 European Planetary Science Congress 2008, Münster, Germany. 2008  
**Poster Contribution:** Radiative transfer in protoplanetary disks.  
doi:10.5281/zenodo.1494310



- Cosmological Radiative Transfer Comparison Project Workshop III, University of Texas, Austin, USA. 2008
- M.Sc. final exam, University of Florence, Florence, Italy. 2008  
**Thesis presentation:** Il trasporto della radiazione nei dischi protoplanetari: il ruolo della polvere.  
doi:10.5281/zenodo.1494280
- EANA 2007, 7th European Workshop on Astrobiology, University of Turku, Turku, Finland. 2007  
**Poster Contribution P10.5:** Radiative Transfer in Protoplanetary Disk: vertical energy structure modeling and disk chemistry effects.  
<http://www.astro.utu.fi/conf/EANA07/programme.shtml>  
**Poster Contribution P6.1:** Thermal history of micrometeoroids during the atmospheric entry.

### Webinars (On-line learning) / European Open Access Science

- **EU Research: Open Access Week 2018** 2018  
A series of webinars and tutorials organized by OpenAIRE and FOSTER  
Available at: <http://openaccessweek.org/>
- **EU Research/RDA: Open Science Webinar Series 2018** 2018  
A series of webinars offered by OpenAIRE, IOSSG and RDA Italian node  
Available at: [www.rd-alliance.org/group/rda-italy/wiki/open-science-webinar-series-2018](http://www.rd-alliance.org/group/rda-italy/wiki/open-science-webinar-series-2018)

### Awards, fellowships, funded projects

- **PRACE Preparatory Access B.** 2016  
**Awarded Project:** Coupling the RT code CRASH4 with the AMR code RAMSES.  
Available at: <http://www.prace-ri.eu/prace-preparatory-access-24th-cut-off-evaluation-march-2016>
- **PRACE Preparatory Access B.** 2016  
**Awarded Project:** From the first stars to the first galaxies with dustyGadget on HPC.  
Available at: <http://www.prace-ri.eu/prace-preparatory-access-24th-cut-off-evaluation-march-2016>
- **ALMA High Priority Projects Cycle 4 Project (2016.1.00633.S):** 2016  
Revealing the nature of the high-redshift star-forming galaxy SDP.81 with the CO 3-2 line  
Available at: <https://almascience.eso.org/observing/highest-priority-projects>
- **PRIN-SKA 2016:** "Empowering SKA as a probe of galaxy evolution with HI". 2016  
Available at: [http://cosmos.lambrate.inaf.it/eskape\\_wiki/EskapeGroup](http://cosmos.lambrate.inaf.it/eskape_wiki/EskapeGroup)
- **PRACE Preparatory Access B.** 2014  
**Awarded Project:** High Performance release of the GAMESH pipeline.  
Available at: <http://www.prace-ri.eu/preparatory-access-16/>

- **PRACE Preparatory Access B.** 2014  
**Awarded Project:** Porting the Cosmological RT code CRASH to HPC.  
 Available at: <http://www.prace-ri.eu/preparatory-access-16/>
- **PRACE fellowship** for the Conference on Scientific Computing 2013 (CSC 2013). 2013  
 Available at: <http://cyprusconferences.org/csc2013/>
- **DEISA Fellowship:** EU/US Summer School on HPC Challenges in Computational Sciences. 2010  
 Available at: <http://www.ihpcss.org/>
- **IMPRS Fellowship:** The International Max Planck Research School on Astrophysics. 2008  
 Available at: <https://www.imprs-astro.mpg.de/node/2984/index.html>

### Scientific Journal / Referee

- Topic editor, of Universe, MDPI

Referee/Service:

- International Journal of Heat and Mass Transfer.
- Numerical Heat Transfer.
- Monthly Notices of the Royal Astronomical Society (MNRAS)
- Universe, MDPI

The author certifies that every effort has been made to ensure that the information provided above is accurate and up to date.