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EDA GJERGO, Ph.D.

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RESEARCH INTERESTS

Galactic chemical evolution, dust modeling, cosmological simulations, interstellar and intracluster medium, supernova cosmology, dark energy models.

EMPLOYMENT

Nanjing University September 2022 - Present
Postdoctoral Scholar *Nanjing, China*

Wuhan University October 2019 - August 2022
Postdoctoral Scholar *Wuhan, China*

Università degli Studi di Trieste 2015 - 2019
Research Assistant *Trieste, Italy*

Argonne National Laboratory 2011 - 2015
Co-op and Junior Team Member *Chicago, IL*

Sperling & Kupfer 2007
Popular Science Co-writer of a Bestselling Physics book *Milan, Italy*

EDUCATION

Università degli Studi di Trieste Thesis defense: Feb 15th 2019
Doctor of Philosophy in Physics *Trieste, Italy*

· Thesis Title: Dust Evolution in Galaxy Cluster Simulations
· National Institute for Astrophysics (INAF) fellowship

Illinois Institute of Technology Degree conferred on: May 2014
Bachelor of Science in Applied Mathematics *Chicago, IL*

· International Scholarship

Illinois Institute of Technology Degree conferred on: May 2014
Bachelor of Science in Physics *Chicago, IL*

· International Scholarship

United World College of the Adriatic Degree conferred on: May 2008
International Baccalaureate Diploma *Duino, Italy*

· Italian Ministry of Foreign Affairs Full Scholarship (3.5% acceptance rate)

SKILLS

Languages	(native) Italian, English, Albanian, (studying) Chinese, (elementary) German, Latin
Computing	Mathematica, MATLAB, Octave, ROOT, Maple,
Astronomy codes	GADGET-2/3, CosmoMC, SNANA, SNCosmo
Programming	**Python**, Fortran90/77, C, IDL
OS	Linux, macOS, Microsoft Windows
Editor/Misc.	Emacs, Vi, SVN, TotalView, Anaconda.
Markup	HTML/CSS, LaTeX

RESEARCH AND WORK EXPERIENCE

Nanjing University September 2022 – Present
Postdoctoral Scholar *Nanjing, China*

· Working on extending my Chemical evolution code `GalCEM` to multizone models.
· Working on the variable IMF theory IGIMF and developer of the publicly available code `pyIGIMF`.
· Taught a University Introductory class on Galactic Chemical Evolution.
· Co-mentored undergraduate students Zihao Lin (now a graduate student at Nanjing University) and Rundong Yu (now a graduate student at Johns Hopkins University).

Wuhan University October 2019 – August 2022
Postdoctoral Scholar *Wuhan, China*

· Developed a detailed, modular, efficient, and flexible galactic chemical evolution code (GalCEM) which tracks the abundance of all stable isotopes in galaxies of varying morphologies.

- Elements from Carbon to Zinc are primarily enriched through contributions from Supernovae Core Collapse (SNCC), Supernovae Type Ia, and AGB stars, as it has been extensively investigated in literature. For such elements, I include these 3 enrichment channels in my code.
- For the treatment of heavy elements, on top s-process contributions from updated AGB and SNCC yield tabulations, I include r-process elements. I include a sophisticated modeling of Neutron Star Mergers, as well as Collapsars, neutrino-driven winds, and Magnetohydrodynamic SN jets. All available isotopic yields are included to date, have never been used in chemical evolution modeling to this level of completeness.
- The code presentation paper is in submission. The paper on heavy elements is in substantial preparation.

· Taught two modules of the Classical Mechanics undergraduate class.

· Mentored an undergraduate student, Jinning Liang (now a graduate student at Durham University), through a first-authorship publication. Offered guidance in navigating the literature, observational databases, scientific writing, critical thinking, data processing and data visualization.

- Corresponding author to Jinning Liang's first author publication.

· Joined the *Middle Ages Galaxy Properties with Integral Field Spectroscopy (MAGPI)* Survey, contributed to drafting a JWST proposal, helped with the Lyman Alpha Emitter classification. Will investigate dust depletion and distribution at later stages of the survey.

Osservatorio Astronomico di Trieste February 2019 – September 2019
Research Assistant *Trieste, Italy*

· Employed analytical methods to compute dust abundances in galaxy clusters at low-to-intermediate redshift, by means of sophisticated chemical evolution models.

- Through the use of luminosity functions, confirmed that chemical evolution models are consistent with identifying spiral galaxies as the main sources of dust in galaxy clusters.
- Shown that minor galaxies or filamentary structures ~ 1 dex smaller than the break of the Schechter functions cannot be major sources of galaxy cluster dust.

Università degli Studi di Trieste November 2015 – January 2019
Doctor Philosophiae in Physics *Trieste, Italy*

· Adapted a one-zone dust evolution model to cosmological zoom-in simulations of galaxy clusters.

- My work is the first implementation of dust evolution within cosmological simulations of galaxy clusters.
- Converted the theoretical dust evolution model of Hirashita (2015) into a numerical algorithm written in `C`. I embedded this algorithm into GADGET-3, a private simulation code which runs Tree-Particle-Mesh dynamics, smoothed particle hydrodynamics, radiative cooling, star formation and feedback, AGN feedback, and chemical evolution.
  - Tested the consistency of our dust distribution against other common dust distribution models. I verified that our method falls within a small margin of the predictions by said models.
  - Tested a handful of dust production methods into the simulation, including a novel stoichiometry-preserving one (adopted as fiducial production), because it is representative to first order of the characteristic chemical makeup of astrophysical dust in stellar envelopes and dense environments.
  - Investigated the impact of different chemical evolution yields on dust abundances.
  - Included and tested thermal sputtering as the main destruction mechanism in the Intracluster Medium.
  - Became comfortable with running and editing complex parallel codes designed for supercomputers.
- The work appeared in the journal *Monthly Notices of the Royal Astronomical Society*. It was presented at ESO (Garching, Germany), and in several Italian venues.
- Compared the output of our simulation to observational data:
  - The simulated dust abundances are in agreement with local galaxy data, including galaxies of low-metallicity.

  - The simulation slightly underproduces dust masses compared to Planck SED observations at low-to-intermediate redshift. I am currently solving the cause of the discrepancy, but in the paper the problem was approached by relaxing the sputtering timescale.

- Developed a post-processing analysis package written in `Python` to extract and manipulate the simulation's data across cosmic history. The package will be fully accessible to the group and can be customized beyond the end of my PhD program.
  - Wrote an algorithm to trace the evolution history of individual gas particles, as well as special subsets of the simulated particles across cosmic time.
  - Wrote automated python scripts to submit my post-processing routines to the supercomputer's queue, on top of the standard queuing procedure.
  - Learned about special structures which form in smoothed particle hydrodynamical simulations, such as Kaufmann blobs, and the bona fide gas arising from ram pressure stripping. I verified that the sites of dust evolution are not numerical artefacts, but are consistent with the physics we aimed to simulate.

· Analyzed the Spectral Energy Distribution (SED) and the IRX-β relation of simulated high redshift galaxies. I imposed *SPace Infrared telescope for Cosmology and Astrophysics* (SPICA) specifications on flux threhsolds and passbands to the post-processing radiative transfer analysis of *MUlti-Phase Particle Integrator* (MUPPI) cosmological zoom-in simulations of galaxies.

Argonne National Laboratory September 2011 – August 2015
Junior Team Member *Argonne, IL*

· Worked on the forecast of cosmology constraints for the Dark Energy Survey (DES) through the photometric selection of Type Ia supernovae, and aided to the coding the analysis framework of upcoming observations.

- Published in the journal *Astroparticle Physics*, and was presented at the April 2012 APS Meeting, as well as the 221^{st} AAS 2013 Meeting.
- Contributed to the coding of an improved Figure of Merit (FoM), first advocated by the Dark Energy Task Force, which is a Fisher Matrix quantification of the impact of data sets on cosmology parameters.
- Improved the accuracy of the FoM by including the systematic error for core collapse supernovae.

· Initiated a preliminary study of the six optical ugrizy4 filters for the Large Synoptic Survey Telescope (LSST), and their impact on supernova science.

- Provided, on behalf of the DESC supernova group, the filter analysis of the candidate filter vendors able to meet LSST's specifications. The study played a major role in the vendor choice by the LSST committee.
- Explored the effects of ripple amplitude, tapering, leakage of the filters and host-galaxy prior to photo-z supernovae studies.
- Presented our results at the LSST / Dark Energy Science Collaboration (DESC) Meeting in Pittsburgh.
- Represented the LSST project with this work at the 223^{rd} AAS Meeting.

· Explored alternatives to vacuum energy.

- Selected a model for quintessence and a model for modified gravity, and evaluated the constraints to three supernova data sets. Presented our results as a poster at the AAS 222^{nd} Meeting,
- Was awarded with the 2013 Chambliss Astronomy Achievement Student Award for the work.

· Communicated science to a range of audiences, from experts to high school students.

- Presented monthly research progress during the LSST Supernova Science Working group webinars in 2013.
- Explained peer-reviewed cosmology papers during weekly journal clubs at Argonne National Lab.
- Coached new students in the use of the Linux operating system. Taught background knowledge on cosmology, big bang theory, supernovae as standard candles, and cosmic microwave background.
- Co-wrote, co-produced, and hosted 11 Youtube videos on cosmology for the general audience. `http://www.youtube.com/TheCosmicWeb`, and presented this material to 4 classes of high school students.

Illinois Institute of Technology June 2010 – August 2011
Independent study *Chicago, IL*

· Independent reading of a variety of peer-reviewed papers, and attended weekly seminars of the IIT Meshfree Methods group.
· The topics included the MOND paradigm, the Saari conjecture, dark matter models, functional analysis, and positive definite kernels.

Sperling & Kupfer, branch of Mondadori July 2006 – April 2007
Co-author of C*osì parlano le stelle* *Milan, Italy*

· Co-authored a best-seller book for the general public on the fundamental forces of physics, with renowned Italian astrophysicist Margherita Hack. `https://amzn.to/2Kj0FwV`
· Won *Frascati Scienza: La scienza per tutti*, 2010, awarded for communicating science to the general public. The book was selected for this award jointly by 4 National Institutes of Physics in Italy.
· In May ′07 the book ranked #10 in the national bestseller list across all categories, and #2 for the non-fiction category. (surpassed only by the book of Pope Benedict XVI !)
· Invited to present the book in many venues across Italy, including Milan, Florence, Rome, and Trieste.
· Interviewed by Piero Angela at the Quirinale, the residence of the Italian President of the Republic, with Giorgio Napolitano in office, in occasion of the 2007 New Academic Year inauguration.

Summer Science Program June 2007 – August 2007
Research Project Student *Ojai, CA*

· Determined the orbit of a near-earth asteroid from scratch: from data collection with both photographic plates and CCD optical images on 11" and 14" telescopes respectively, to the computation of the asteroid's orbit using spherical trigonometry and numerical differentiation on Python. Submitted observations to the Minor Planet Center.
· Conducted additional research on Messier Objects and Jupiter's satellites. Coded a VPython model of the Solar System.
· Sponsored by the California Institute of Technology, Stanford University, Harvey Mudd College, UCLA, and NASA's Jet Propulsion Laboratory. Competitive admission with a ∼17% rate of acceptance.
· `http://www.summerscience.org/home/index.php`

PUBLICATIONS

1. Type Ia supernovae selection and forecast of cosmology constraints for the Dark Energy Survey February 2013

Gjergo Eda, Duggan Jefferson, Cunningham John, Kuhlmann Stephen, Biswas Rahul, Kovacs Eve, Bernstein Joseph, Spinka Harold

Argonne National Laboratory, Illinois Institute of Technology, Loyola University Chicago

· Astroparticle Physics, Volume **42**, p. 52-61.

2. Analytic photometric redshift estimator for Type Ia supernovae from the Large Synoptic Survey Telescope June 2015

Wang Yun, Gjergo Eda, Kuhlmann Stephen

Argonne National Laboratory, California Institute of Technology, University of Oklahoma

· Monthly Notices of the Royal Astronomical Society, Volume **451**, Issue 2, p.1955-1963.

3. Dust Evolution in Galaxy Cluster Simulations June 2018

Gjergo Eda, Granato Gian Luigi, Murante Giuseppe, Ragone-Figueroa Cinthia, Tornatore Luca, Borgani Stefano.

Osservatorio Astronomico di Trieste INAF, Università di Trieste, Instituto de Astronomia Teorica y Experimental (IATE), Consejo Nacional de Investigaciones Cientificas y Tecnicas de la Republica Argentina (CONICET), Observatorio Astronomico, Universidad Nacional de Cordoba

· Monthly Notices of the Royal Astronomical Society, Volume **479**, Issue 2, p.2588-2606.

4. On the Origin of the Galaxy Cluster Dust at low to intermediate redshift. 2020

Gjergo Eda, Matteucci Francesca, Palla Marco, Lacchin Elena, Biviano Andrea

Osservatorio Astronomico di Trieste INAF, Università di Trieste, Institute Nazionale di Fisica Nucleare (INFN), IFPU - Institute for Fundamental Physics of the Universe, Wuhan University

· Monthly Notices of the Royal Astronomical Society, Volume **493**, Issue 2, p.2782-2792.

5. The MAGPI Survey – science goals, design, observing strategy, early results and theoretical framework 2021

Foster C., et al. *The MAGPI Collaboration*

· Publications of the Astronomical Society of Australia, 2021, Volume **38**, article id. e031

6. LAMOST meets Gaia: The Galactic open clusters 2022

Fu X.-T., et al.

· Astronomy & Astrophysics, Volume **668**, id.A4, 16 pp.

7. GalCEM I: An Open-source Detailed Isotopic Chemical Evolution Code 2023

Gjergo Eda, Sorokin Aleksei, Ruth Anthony, Spitoni Emanuele, Matteucci Francesca, Fan Xilong, Liang Jinning, Limongi Marco, Yamazaki Yuta, Kusakabe Motohiko, Kajino Toshitaka

Wuhan University, Nanjing University, Illinois Institute of Technology, Université Côte d'Azur, INAF Trieste, INAF Roma, Università degli Studi di Trieste, IFPU, INFN, Beihang University, University of Tokyo, NAOJ, Kavli IPMU

· The Astrophysical Journal Supplement Series, Volume **264**, Issue 2, id.44, 22 pp.

8. Assessing stellar yields in Galaxy chemical evolution: Observational stellar abundance patterns 2023

Liang J., Gjergo E., Fan X.L.

· Monthly Notices of the Royal Astronomical Society, Volume **522**, Issue 1, pp.863-884

· Gjergo E. is the corresponding author.

9. Correction to: An analytical description of the evolution of binary orbital-parameter distributions in N-body computations of star clusters 2023
Kroupa P., Wang Y., Gjergo E.

· Monthly Notices of the Royal Astronomical Society, Volume **526**, Issue 4, pp.5777-5777

10. α-enhanced Astrochemistry: The Carbon cycle in extreme galactic conditions 2024
Bisbas T. G., Zhang Z.-Y., Gjergo E., Zhao Y.-H., Luo G., Quan D.-H., Jiang X.-J., Sun Y.-C., Topkaras T., Li D., and Guo Z.-Y.

· Monthly Notices of the Royal Astronomical Society, Volume **527**, Issue 3, pp.8886-8906

11. First detection of CO isotopologues in a high-redshift main-sequence galaxy: evidence of a top-heavy stellar initial mass function 2024
Guo Z.-Y., et al., including Gjergo E.

· accepted to The Astrophysical Journal

PROCEEDINGS AND PROPOSALS

1. The many tensions with dark-matter based models and implications on the nature of the Universe 2023
Kroupa P., Gjergo E., Asencio E., Haslbauer M., Pflamm-Altenburg J., Wittenburg N., Samaras N., Thies I., Oehm W.

· Proceedings of Corfu2022: Workshop on Tensions in Cosmology

2. The MAGPI-MIRI survey: Unveiling the Evolution of Dust with Galaxy Environment 2023
Battisti A., R. Bassett, D. Calzetti, C. Foster, E. Gjergo, A. Kirkpatrick, J. Mendel, A. Pope, J. Trayford, C. Urbina, E. Wisnioski JWST Proposal, 1799 submission

· submitted to the James Webb Telescope

3. Constraining the initial mass function in a high redshift strongly-lensed galaxy 2022
ZiYi Guo, Zhiyu Zhang, Jing Zhou, Yichen Sun, Eda Gjergo, Zhiqiang Yan VLA/2022-00-036

· submitted to the Very Large Array

4. An ACA census of Galactic metal-poor molecular clouds 2021
Lingrui Lin, Zhiyu Zhang, Yichen Sun, Jing Zhou, Gan Luo, Di Li, Yan Sun, Eda Gjergo Atacama Compact Array, 2021B-A013 submission

· approved for the Atacama Compact Array

MENTORING EXPERIENCE

1. Jinning LIANG Yield Performance Against Galactic Stellar Abundances with NuPyCEE
2021-2023 *Wuhan University*

· Now enrolled in a PhD program in Durham University

2. Rundong YU Low-mass IMF variation in high metallicity environments
2022-2023 *Nanjing University*

· Now enrolled in a PhD program in Johns Hopkins University

3. Zihao LIN Isotopic abundance gradients in the Galactic disk
2022-2023 *Nanjing University*

· Zihao received a top-tier grade in his graduating class for our research, with a score of 90+.

· He was awarded with a 10.000 RMB research prize from Nanjing University.
· Now enrolled in a graduate program in Nanjing University

4. Haoyang LI Abundance gradients in Galaxy Clusters
2024-Present *Nanjing University*

TEACHING EXPERIENCE

1. Yerkes Observatory High School Summer Program July 29, 2013
Invited Lecturer *Yerkes Observatory, WI, USA*

· Hour-long seminar on cosmology (big bang theory, DM, DE, and CMB) for selected high school students.
· Program organized by the University of Chicago.
· `http://prezi.com/1ytyie0rvdtb/?utm_campaign=share&utm_medium=copy`

2. Introduction to Astrophysics April 2017, April 2018
Invited Lecturer *University of Trieste, Italy*

· Taught twice a two-Hour class on general relativity and cosmology for undergraduate students enrolled in the Introduction to Astrophysics course at the University of Trieste.

3. Classical Mechanics September 2020
Invited Lecturer *Wuhan University, China*

· Taught a two-hour class on the hydrostatic equilibrium in stars, and on the Virial theorem for undergraduate students enrolled in a Classical Mechanics course at Wuhan University. I prepared homework and solutions as well as in-class activities.

4. Introduction to Galactic Chemical Evolution June 2023
Invited Lecturer *Nanjing University, China*

· Taught a 1.5-hour class on Galactic Chemical Evolution for University students, including key concepts and results, as well as introductory information on nucleosynthesis and stellar evolution.

INVITED TALKS AND SEMINARS

1. Computing the evolution of isotopes in the open source GCE code GalCEM Nov 2, 2023
Invited Speaker *Beihang University, Beijing, China*

· Invited speaker for the weekly online seminar.

2. The Galactic Chemical Evolution of Heavy Elements Apr 22, 2022
Invited Speaker *Bonn University, Bonn, Germany*

· Invited speaker for the weekly online seminar.

3. The Galactic Chemical Evolution of Heavy Elements Apr 20, 2022
Invited Speaker *Charles University, Prague, Czech Republic*

· Invited speaker for the weekly online seminar.

4. GCE constraints on the production of Heavy Elements Jan 12, 2022
Invited Speaker *GW NEXT 22 online conference, Kavli Institue at PKU, Beijing, China*

· 45-minute introduction designed for early-career gravitational wave scientists.

5. Galactic Chemical Evolution May 28, 2021
Invited Speaker *NAO group meeting, Beijing, China*

· Hour-long seminar introducing LAMOST observers to galactic chemical evolution.

6. On the Origin of Dust at low-to-intermediate Redshifts November 2020
Invited Speaker *Kavli Institue at PKU, Beijing, China*

· Hour-long seminar on my PhD work as well as 2020 publication.

7. Dust Evolution in Galaxy Cluster Simulations December 2019
Invited Speaker *Beijing Normal University, China*

· Hour-long seminar on my PhD work.

8. Third International Workshop on recent LHC results and related topics October 10-12, 2018
Invited Speaker *Faculty of Natural Sciences, University of Tirana, Albania*

· Hour-long seminar on cosmology and cosmological simulations, presented to an audience of CERN researchers and Albanian graduate students.

9. Second International Workshop on recent LHC results and related topics Semptember 26-27, 2016
Invited Speaker *Faculty of Natural Sciences, University of Tirana, Albania*

· Hour-long seminar on dark matter and dark energy frontiers, presented to an audience of CERN researchers and Albanian graduate students.

REPORTS

1. Filter Study for LSST using supernovae simulations and photo-z host galaxy bias 2014
Gjergo Eda, Kuhlmann Stephen, Gilmore D. Kirk, Kessler Richard
Argonne National Laboratory, Illinois Institute of Technology,
Kavli Institute for Cosmological Physics, SLAC National Accelerator Laboratory *AAS 223 Poster*

· Honorable Mention for the AAS Chambliss Student Achievement Award

2. Comparison of Supernova Data Sets with Modified Gravity and Dark Energy Models 2013
Gjergo Eda, Pedersen Keith, Shylnov Yurii, Kuhlmann Steve
Argonne National Laboratory, Illinois Institute of Technology *AAS 222 Poster*

· Winner of the AAS Chambliss Student Achievement Award
· http://aas.org/posts/news/2013/06/congratulations-aas-222-chambliss-student-award-winners

3. Cosmology Biases in the Analysis of Future Supernova Surveys 2013
Stanwyck Lynn, Gjergo Eda, Kuhlmann Stephen, Biswas Rahul, Kovacs Eve
Argonne National Lab, Illinois Institute of Technology, Johns Hopkins University *AAS 222 Poster*

4. Type Ia Supernovae Selection and Forecast of Cosmology Constraints for the Dark Energy Survey 2012
Gjergo Eda, Duggan J., Cunningham J., Kuhlmann S., Biswas R., Kovacs E., Bernstein J. P., Spinka H.
Argonne National Laboratory, Loyola University Chicago, Illinois Tech *AAS 221 Poster*

5. Uncertainties in Core Collapse Supernovae Simulations 2012
Duggan, J., Cunningham J., Kuhlmann S., Gjergo, E., Biswas R., Kovacs E., Spinka H.
Argonne National Laboratory, Loyola University Chicago, Illinois Tech *AAS 221 Poster*

6. Generalization of selected $f(R)$ Relativity models and cluster constraints 2014
Shylnov Yurii, Gjergo Eda, Kuhlmann Stephen
Illinois Institute of Technology, Argonne National Laboratory

TECHNICAL TALKS

1. MAGPI Busyweek June 2021
Participant and Oral Presenter *Webinar*

· Title: "Mapping dust depletion rates in resolved MAGPI galaxies."
· `https://magpisurvey.org/`

2. HydroSim Meeting September 13-16, 2016
Participant and Oral Presenter *Trieste, Italy*

· Title: "Modeling dust evolution within the GADGET-3 cosmological simulation".
· `https://indico.ict.inaf.it/event/440/contributions/`

3. LSST-DESC Collaboration Meeting December 4-6, 2013
Participant and oral presenter *Pittsburgh, PA*

· `https://indico.bnl.gov/conferenceDisplay.py?confId=691`
· Title: "Workshop talk on filter study using SNae simulations".
· Title: "Short plenary talk on filter studies using SNae simulations and photoZs".

4. LSST DESC SN Working Group June, July, August, September, October, November 2013
Participant and presenter *Restricted 1-hour webinar*

· On the second half of 2013, presenter of filter studies for LSST using supernovae simulations and photo-z host galaxy bias.

5. DESSN Workshop July 15-19, 2013
Participant *KICP at the University of Chicago, Chicago, IL*

· `https://cdcvs.fnal.gov/redmine/projects/des-sn/wiki/DESSN_Worshop_at_UofC_KICP`

TALKS AT INTERNATIONAL CONFERENCES AND DOMESTIC MEETINGS

1. The 16 th International Symposium on Origin of Matter and Evolution of Galaxies (OMEG16) October, 2022
Online Participant and Oral Presenter *Hanoi, Vietnam*

· Title: "GalCEM: the Galactic Chemical Evolution of all the isotopes"
· `https://iop.vast.vn/~omeg16/`

2. Interstellar Physics and Chemistry January, 2022
Online Participant and Oral Presenter *Zhuhai, China*

· Title: "On the origin of dust in galaxy clusters at low-to-intermediate redshifts"
· `https://ism.dust.fan/ism2021/`

3. Origin of Elements and Cosmic Evolution: From Big-Bang to Supernovae and Mergers December, 2019
Participant and Oral Presenter *Beihang University, Beijing, China*

· Title: "The evolution of dust in galaxy clusters"
· http://oece2019.csp.escience.cn/

4. The Milky Way 2019: LAMOST and Other Leading Surveys October, 2019
Participant and Oral Presenter *YiChang, China*

· http://mw2019.csp.escience.cn/dct/page/65585

5. Italian Cluster II Sept 10-13, 2018
Participant and Oral Presenter *Naples, Italy*

· Title: "Dust Evolution in Galaxy Cluster Simulations"
· https://sites.google.com/view/cluster2/

6. Early Stages of Galaxy Cluster Formation July 17-21, 2017
Participant and Oral Presenter *Garching, Germany*

· Title: "Simulating Galaxy Clusters with Dust Formation and Evolution"
· https://www.eso.org/sci/meetings/2017/GCF2017/program.html

7. Beyond the Solar Neighborhood January 22-27, 2017
Participant and Oral Presenter *Sexten, Italy*

· Title: "Modeling Dust Evolution within the GADGET-3 Cosmological Simulation"
· Conference website: http://www.sexten-cfa.eu/conferences/details/78-beyond-the-solar -neighborhood-entering-into-the-gaia-era.html.

8. 23rd Annual Argonne Symposium November 1, 2013
Participant and Oral Presenter *Argonne, IL*

· Website: http://www.dep.anl.gov/p_undergrad/ugsymp/
· Presentation: "Using Type Ia Supernovae to investigate the expansion of the Universe for the Dark Energy Survey".

9. 23rd Midwest Relativity Meeting October 25-27, 2013
Participant and Oral Presenter *University of Wisconsin-Milwaukee, Milwaukee, WI*

· Meeting's website: http://www.gravity.phys.uwm.edu/conferences/mwrm2013/index.html
· Talk (Presented by Eda Gjergo): http://tinyurl.com/23RelativityMtgMilwaukeeGjergo
· Talk (Presented by Yurii Shylnov):http://tinyurl.com/23RelativityMtgMilwaukeeShylno

10. KICP Supernova Hub Workshop March 2012
Participant and oral presenter *Kavli Institute of the University of Chicago, Chicago, IL*

· Technical talk on "Photometric Identification of Supernova"
· Talk: http://kicp-workshops.uchicago.edu/SNphotID_2012/depot/talk-gjergo-eda.pdf

POSTERS AND MISCELLANEOUS CONFERENCES

11. Nuclei in the Cosmos (NIC XVII) September 17-22, 2023
Participant and Poster Presenter *Daejeon, South Korea*

· Title: "Probing the origin of heavy elements in the Milky Way and its dwarf satellites with a variable initial mass function"

· https://indico.ibs.re.kr/event/548/

12. Italian Cluster I Feb 27 - March 1, 2017
Participant and Poster Presenter *Turin, Italy*

· Title: "Dust Evolution in Cosmological Simulations of Galaxy Clusters"
· https://sites.google.com/view/cluster1/

13. KROME Computational school September 19-21, 2016
Participant *Florence, Italy*

· http://www.kromepackage.org/bootcamp/index.php

14. ICTP Workshop on Large-Scale Structure June 2016
Participant *Trieste, Italy*

· http://indico.ictp.it/event/7630/

15. ICTP Summer School of Cosmology June 2016
Participant *Trieste, Italy*

· http://indico.ictp.it/event/7626/

16. Lucchin school 2016 May 2016
Participant *Naples, Italy*

· Short introduction of my background
· http://eventi.na.astro.it/en/scuola-lucchin/

17. Santa Fe Cosmology Workshop July 1-19, 2013
Participant and oral presenter *Santa Fe, NM*

· http://press3.mcs.anl.gov/santa-fe-cosmology-workshops/sf13-main/
· Title "Type Ia supernovae selection and forecast of cosmology constraints for the Dark Energy Survey".

18. Chicago Area Undergraduate Research Symposium March 2013
Oral Presenter *Chicago, IL*

· Event's website: http://www.caurs.com/
· Title "The accelerated expansion of the Universe: Dark Energy parameters probed with Type Ia supernovae".

19. AAS 221$^{\mathbf{st}}$ Meeting January 2013
Participant and poster presenter *Long Beach, CA*

· Title: "Competition between Type Ia supernovae sample purity and efficiency for DES"
· http://aas.org/files/resources/aas_221_program_book.pdf

20. ICTP Summer School of Cosmology July 2012
Participant and poster presenter *Trieste, Italy*

· Title: "Type Ia Supernovae Selection and Forecast of Cosmology Constraints for DES"
· http://cdsagenda5.ictp.trieste.it/full_display.php?ida=a11178

21. ICTP Workshop on Large-Scale Structure July 2012
Participant *Trieste, Italy*

· http://cdsagenda5.ictp.trieste.it/full_display.php?ida=a11314

22. Chicagoland and Midwest 1-Day Dark Matter Workshop April 6^{th} 2012
Participant *Fermilab, Batavia, IL*

· http://www.hep.anl.gov/byrum/DM/ChicagolandDM.htm

23. APS April Meeting April 2012
Oral presenter *Atlanta, GA*

· Title: "Optimization of Type Ia Supernovae Selection, Photometric Typing, and Cosmology Constraints"

· Talk: `http://meetings.aps.org/Meeting/APR12/Event/169557`

24. Nebraska Conference For Undergraduate Women in Mathematics January 2011
Participant *Lincoln, NE*

· `http://www.math.unl.edu/~ncuwm/13thAnnual/`

AWARDS

• National Institute of Astrophysics (INAF) Fellowship (2015-2018)

• Winner of the Chambliss Astronomy Achievement Student Award for the American Astronomical Society, Summer 2013.

• Honorable Mention for the Chambliss Astronomy Achievement Student Award for the American Astronomical Society, Winter 2014.

• College of Science and Letters Dean's List for excellent scholarly achievement. (Spring 2010, Fall 2014).

• IIT Undergraduate Research Day Award, 2^{nd} place, 2011.

• IIT SIAM Math Problem Competition Award, 2010.

• Best Seller, Italy, Summer 2007, 10^{th} place nationwide and 2^{nd} place in the non-fiction category, for the book *Così parlano le stelle*.

• Winner of *Frascati Scienza: La scienza per tutti*, 2010, awarded for *Così parlano le stelle*.

• 2-year merit based full scholarship for the United World College of the Adriatic
(3.5% rate of admission in Italy, academic year 2006-2008).

• 1^{st} place winner of the *Concorso Liceale di Scrittura in Astronomia dell'Osservatorio di Arcetri*, 2006.

• Participated in the Regional Olympiads in Mathematics, Friuli-Venezia-Giulia Region, Italy, 2007.

• Participated in the Regional Olympiads in Physics, Friuli-Venezia-Giulia Region, Italy, 2007.

• Participated in the Regional Olympiads in Mathematics, Toscana, Italy, 2005.

• Participated in the National Olympiads in Astronomy, Italy, 2004.