

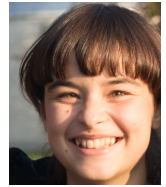
Erika Korb

PhD candidate in Astrophysics | University of Padua

📍 Venice, Italy

@ erika.korb.astro@gmail.com 📧 [erikakorb](#) 📷 [erikakorb](#)

🔗 <https://erikakorb-website-welcome-9etk7i.streamlit.app/>



🎓 EDUCATION

NOW (SEP 2025)	PhD candidate in Astrophysics, University of Padua	
OCT 2022	<i>Binary compact object populations</i> Supervisor: Prof. Michela Mapelli; Co-Supervisor: Prof. Giuliano Iorio	
	➤ I study the correlation between stellar structure and mass transfer efficiency, simulating stellar and binary processes with the stellar evolution software MESA. I aim to extract fitting-formulae and tables that can be implemented by population-synthesis codes, allowing for more realistic simulations, and contributing to the science case for Einstein Telescope.	
	🔗 MESA 🔗 Einstein Telescope	
SEP 2022	Master in Astrophysics and Cosmology, University of Padua	110/110 cum laude
OCT 2020	<i>Wolf-Rayet – black hole binaries as progenitors of binary black holes</i> Supervisor: Prof. Michela Mapelli; Co-Supervisor: Dr. Giuliano Iorio	
	🔗 SEVN 📄 Thesis PDF 📧 erikakorb/masterthesis	
SEP 2020	Bachelor in Astronomy, University of Padua	110/110 cum laude
OCT 2017	<i>Impact of mass transfer efficiency on the formation of binary compact objects</i> Supervisor: Prof. Michela Mapelli; Co-Supervisor: Dr. Giuliano Iorio	
	🔗 SEVN 📄 Thesis PDF	

🌐 VISITING RESEARCHER

OCT 2024 - MAR 2025	University of Heidelberg - Institute for Theoretical Astrophysics (ITA-ZAH)
MAR-APR, JUN 2024	Host: Prof. Michela Mapelli

🏆 AWARDS AND PRIZES

2023	Geppina Coppola Prize by the Geppina Coppola Association, INAF-OACN 🔗 Website ➤ Best master thesis in astronomy in Italy. ➤ 1500 € prize, ~ 2.5% success rate, 2 invited talks to Naples (INAF-OACN).
2020	Mille e una lode by the University of Padua 🔗 Website ➤ I was in the $\leq 3\%$ of students with the highest average grade in my bachelor. ➤ 1000 € scholarship for a 250 hours internship. I included it in my master thesis work.
2016, 2015	Il cielo come laboratorio by the University of Padua 🔗 Website ➤ 3-days internship at the Asiago observatory. Photometric and spectroscopic data analysis. ➤ ~ 23% success rate, regional selection.

FIRST-AUTHOR	<p>Wolf-Rayet – compact object binaries as progenitors of binary compact objects</p> <p>E. Korb, M. Mapelli, G. Iorio, G. Costa</p> <p>Oct 2024 - <i>Submitted to A&A</i>. arxiv.org/abs/2410.08965</p>
CO-AUTHOR	<p>The boring history of Gaia BH3 from isolated binary evolution</p> <p>G. Iorio, S. Torniamenti, M. Mapelli, M. Dall’Amico, A. A. Trani, S. Rastello, C. Sgalletta, S. Rinaldi, G. Costa, B. A. Dhal-Lahtinen, G. J. Escobar, E. Korb, M. P. Vaccaro, E. Lacchin, B. Mestichelli, U. N. Di Carlo, M. Spera, M. Arca Sedda</p> <p>Oct 2024 - <i>A&A 690, pg. A144</i> ui.adsabs.harvard.edu/abs/2024A%26A...690A.144I/abstract</p> <p>Compact object mergers: exploring uncertainties from stellar and binary evolution with SEVN</p> <p>G. Iorio, M. Mapelli, G. Costa, M. Spera, G. J. Escobar, C. Sgalletta, A. A. Trani, E. Korb, F. Santoliquido, M. Dall’Amico, N. Gaspari, A. Bressan</p> <p>Sep 2023 - <i>MNRAS 524, pg. 426</i> ui.adsabs.harvard.edu/abs/2023MNRAS.524..426I/abstract</p>
PROCEEDING	<p>Wolf-Rayet - compact object binaries: a key intermediate configuration to produce gravitational wave mergers</p> <p>E. Korb</p> <p>Oct 2024 - <i>Submitted to the “Bulletin de la Société Royale des Sciences” (41st LIAC contribution)</i>.</p>

CONFERENCES & TALKS

23 - 26 SEP 2024	<p>National Congress on Compact Objects (CNOX XIII)</p> <p><i>INAF Osservatorio Astronomico di Cagliari, Alghero</i></p> <p>Contributed talk</p>
16 - 20 SEP 2024	<p>1st TEONGRAV international workshop on the theory of gravitational waves</p> <p><i>Sapienza University of Rome, Rome</i></p> <p>Contributed talk</p>
1 - 6 SEP 2024	<p>Heraeus Summer School - Astronomy from Multiple Perspectives</p> <p><i>Friedrich Schiller Universität Jena, Jena</i></p> <p><u>Invited</u> talk</p>
15 - 19 JUL 2024	<p>41st LIAC: The eventful life of massive star multiples</p> <p><i>Université De Liège, Liège</i></p> <p>Contributed talk</p>
10 - 14 JUN 2024	<p>360° Approach to Common Envelope Evolution</p> <p><i>Institut Ciències del Cosmos Universitat de Barcelona, Barcelona</i></p> <p>Poster (online)</p>
10 NOV 2023	<p>Astrometing INAF-OACN (“Geppina Coppola” prize)</p> <p><i>INAF Osservatorio Astronomico di Capodimonte, Naples</i></p> <p><u>Invited</u> talk</p>
26 - 30 JUN 2023	<p>The Renaissance of Stellar Black-Hole Detections in The Local Group</p> <p><i>Lorentz Center, Leiden</i></p> <p>Contributed talk</p>
21 - 22 APR 2023	<p>Spring Workshop on Physics of Data</p> <p><i>AI Society - University of Padua, Venice</i></p> <p><u>Invited</u> talk</p>
4 - 5 AUG 2022	<p>Post-PAX meeting</p> <p><i>Harvard-Smithsonian Center for Astrophysics, Boston</i></p> <p>Poster (online)</p>

OCT 2023 - ONGOING	Museum guide at the “Giovanni Poleni” Physics Museum, Padua Website <ul style="list-style-type: none"> › I accompany visitors through the exhibition of historical (18-19-20th century) scientific instruments hosted at the “Giovanni Poleni” Physics Museum in Padua.
28, 29 SEP 2024 29 SEP 2023	European Researcher’s Night - Science4All, Padua Website <ul style="list-style-type: none"> › 2024: I collaborated to the activity “Cartoline Stellari”, introducing kids to constellations. › 2023: I gave a talk (<i>Olive Ascolane Stellari</i>) about my research topic to the general public.
25 APR 2024	Girl’s Day, University of Heidelberg Website <ul style="list-style-type: none"> › I prepared an a gravitational-wave-themed activity for the Girl’s Day event. The initiative, held also at the University of Heidelberg, promoted STEM disciplines among young girls.
FEB - JUN 2024	Designing innovative public engagement activities, Castellaro Lagusello Website <ul style="list-style-type: none"> › I developed the outreach project “Caccia al ladro fra le stelle” for the astronomy festival in Castellaro Lagusello (Italy). The project was developed to be accessible also to people with disabilities and is available at https://play.inaf.it/caccia-al-ladro-fra-le-stelle/
OCT 2023 - FEB 2024	Teacher for the outreach project “Il cielo come laboratorio”, Venice Website <ul style="list-style-type: none"> › I held an astronomy course (16 h.) at the high school “Benedetti-Tommaseo” in Venice as part of the astronomy outreach project “Il cielo come laboratorio” coordinated by the University of Padua. The project offers university-orientation in scientific subjects to high school students. 4/30 of the students following my lessons were selected (~ 23% success rate) to participate in a 4-days stage at the Asiago observatory to analyze astronomical data.
10 NOV 2023	“Geppina Coppola” prize, INAF-OACN Naples Website <ul style="list-style-type: none"> › I presented my master thesis work to the general public in the ceremony where I was awarded the “Geppina Coppola” prize for best master thesis in astronomy in Italy.
23, 24 MAR 2023	Science and mythology of constellations, Venice <ul style="list-style-type: none"> › I held two lessons to students in the high school “G.B. Benedetti” in Venice, explaining the link between constellation’s mythology and astronomical phenomena. I brought spheres and gyroscopes in class, and scripted a plugin in <i>Stellarium</i> to automatize the sky visualization.
NOV 2022 - JUN 2023	Science from the Islamic world to today’s Europe, Padua Website <ul style="list-style-type: none"> › I worked with PhD students and members of the Padua foreign communities to create new outreach projects for the “Giovanni Poleni” Physics Museum of Padua, communicating the scientific research and teaching practices brought from the Islamic world to today’s Europe.
16 JUL 2019	Telescope observations open to the general public, Padua Website <ul style="list-style-type: none"> › I collaborated with the amateur astronomers of Padua, using their telescopes to illustrate celestial objects in the public event organized for the partial lunar eclipse.



SCHOOLS

28 AUG - 1 SEP 2023	MESA Summer School 2023, Konkoly Observatory, Budapest	Website
3 - 7 OCT 2022	3rd Astrostatistics School, INAF Brera, Milan	Website

TEACHING

APR - JUN 2024	Laboratory of Computational Physics (Mod B.)	Teaching assistant
APR - JUN 2023	<i>University of Padua, Master in Physics of Data</i> Prof. Marco Baiesi, Prof. Giuliano Iorio	24 h.
OCT 2023 - FEB 2024	Il cielo come laboratorio (astronomy course - outreach project) <i>High School "Benedetti-Tommaseo", Venice</i>	Main teacher 16 h.

THESIS CO-SUPERVISOR

MASTER	Juan Manuel Pacheco Arias	2023
	<i>Hydrodynamical simulations of massive stars collisions</i>	 Master Thesis
BACHELOR	Alberto Casellato	2024
	<i>Study on the effect of mass transfer stability on binary black hole properties</i>	 Bachelor Thesis

MEMBERSHIPS & COLLABORATIONS

2024 - NOW	University of Heidelberg - Institute for Theoretical Astrophysics (ITA-ZAH)	Website
2022 - NOW	LISA - Associate member of the Laser Interferometer Space Antenna consortium	Website
2022 - NOW	ET - Member of the Einstein Telescope collaboration	Website
2022 - NOW	TEONGRAV - Member of the Theory of Gravitational Wave Sources collaboration	Website
2022 - NOW	INFN - Affiliated to the Italian Institution for Nuclear Physics; Section of Padua	Website
2020 - NOW	DEMOBLACK - Member of the ERC-funded research group led by Michela Mapelli	Website

SOFTWARE SKILLS

ADVANCED	Python (e.g., <i>Numpy, Matplotlib, Pandas, Dask, Scipy, RegEx, Streamlit, Altair</i> ; Jupyter, IDLE), L ^A T _E X (TeXstudio, Overleaf), Slurm (Queue scheduler for HPC), Git, Linux, Windows, SEVN (Population-synthesis code), MESA (Stellar evolution software)
INTERMEDIATE	Markdown, Bash, Stellarium (scripting plugins for outreach), Inkscape/GIMP (Graphics)
BASIC	C++, Fortran90, JAGS (Gibbs sampler), SAOImage DS9, TOPCAT, Olive (video editing)

LANGUAGES

	A1	A2	B1	B2	C1	C2	
ITALIAN	●	●	●	●	●	●	(native)
ENGLISH	●	●	●	●	●	○	
GERMAN	●	●	○	○	○	○	