

Erika Korb
Astrophysicist | Staff Research Scientist

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RESEARCH EXPERIENCE

CURRENT	Staff Research Scientist
NOV 2025	Astronomical Observatory Valle d'Aosta (OAVdA) - Fondazione Clément-Fillietroz (FCF) <ul style="list-style-type: none">Developer of AI solutions for Technology Transfer for ecological transition and environmental monitoring.Astrophysical researcher in stellar, binary evolution, and gravitational waves. Maintainer of the SEVN code.
DEC 2025	Visiting Researcher
FEB 2024	University of Heidelberg - Institute for Theoretical Astrophysics (ITA-ZAH) <ul style="list-style-type: none">Collaboration with ERC-funded group of Prof. M. Mapelli. 9 months spent in presence (non-consecutive).Prosecution of the PhD thesis on gravitational wave progenitors and co-development of the SEVN code.

EDUCATION

DEC 2025	PhD in Astrophysics, University of Padua	
OCT 2022	Thesis: <i>Binary compact object populations</i> Supervisor: Prof. Giuliano Iorio; Co-Supervisors: Prof. Michela Mapelli, Prof. Giovanni Carraro	
SEP 2022	Master in Astrophysics and Cosmology, University of Padua	110/110 cum laude
OCT 2020	Thesis: <i>Wolf-Rayet – black hole binaries as progenitors of binary black holes</i> Supervisor: Prof. Michela Mapelli; Co-Supervisor: Prof. Giuliano Iorio	
SEP 2020	Bachelor in Astronomy, University of Padua	110/110 cum laude
OCT 2017	Thesis: <i>Impact of mass transfer efficiency on the formation of binary compact objects</i> Supervisor: Prof. Michela Mapelli; Co-Supervisor: Prof. Giuliano Iorio	

PRIZES AND GRANTS

2024	Fondazione Gini Scholarship by the Fondazione Aldo Gini 4600 € scholarship to support a 6 months STEM research project in Heidelberg. Info
2023	Geppina Coppola Prize by the Geppina Coppola Association, INAF-OACN 1500 € prize for best master thesis in astronomy in Italy (~ 2.5% success rate). 2 invited talks. Info
2020	Mille e una lode by the University of Padua 1000 € scholarship awarded to the $\leq 3\%$ of students with the highest average grade in my bachelor. Info

TEACHING EXPERIENCE

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. Giuliano Iorio) Machine learning and optimization techniques with Python for astrophysical numerical simulations Info	24 h.
NOV-JAN 23/4	The sky as a laboratory <i>High School “Benedetti-Tommaseo”, Venice</i> Outreach course to introduce astrophysics to high school students Info	Main teacher 16 h.

MENTORING EXPERIENCE

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

SCHOOLS

OCT 2024	MWGaiaDN School: Frontiers of Stellar Evolution, INAF-OAPD (online) ‣ Gaia catalogue, galactic surveys, population synthesis tools for stars (e.g. Trilegal code)	Program
JULY 2024	Astrostatistics Summer School, University of Crete, Heraklion ‣ Machine and Deep Learning, Simulation Based Inference, MCMC, Optimization (Python)	Program
AUG 2023	MESA Summer School 2023, Konkoly Observatory, Budapest ‣ MESA stellar evolution software. Binary and asteroseismology tutorials.	Program
OCT 2022	3rd Astrostatistics School, INAF Brera, Milan ‣ Bayesian statistics applied to the astrophysical context (JAGS software)	Program

OUTREACH

PHYSICS MUSEUM	Museum guide, Physics museum “Giovanni Poleni”, Padua ‣ Guide at the physics museum of historical (18-19-20th century) scientific instruments. Project “Science from the Islamic world to today’s Europe” ‣ Communicating scientific researches and teaching practices brought from the Islamic world.	Jul 2023 - Oct 2025 Nov 2022 - Jun 2023
FESTIVAL ACTIVITIES	Activity designer and facilitator for multisensorial astronomical festivals , Castellaro Lagusello ‣ Light pollution activity: https://play.inaf.it/alla-ricerca-del-buio/ ‣ Astrolabe activity: https://play.inaf.it/caccia-al-ladro-fra-le-stelle/ Facilitator at European Researcher’s Night - Science4All , Padua ‣ Facilitator in the hand-on activity “ Cartoline Stellari ”, to introduce kids to constellations. Activity designer and facilitator for the “Girl’s Day” , Heidelberg ‣ Gravitational wave-themed activity “ A dance of stars and black holes ” for the Girl’s Day event in Heidelberg. Facilitator with amateur astronomers , Padua	Jan - Jun 2025 Feb - Jun 2024 Sep 2024, Sep 2025 Apr 2024, Apr 2025 Jul 2019
LECTURE COURSES	Main teacher of the course “The sky as a laboratory” , Venice ‣ University-orientation course in scientific subjects to high school students, with final exam. Lecture on “Science and mythology of constellations” , Venice ‣ Linking constellation’s mythology and astronomical phenomena with an ad-hoc scripted <i>Stellarium</i> plugin.	Oct 2023 - Jan 2024 Mar 2023
PUBLIC TALKS	Research activity presentations to the general public ‣ To the amateur astronomers of Treviso (Italy) ‣ For the “Geppina Coppola” prize at INAF-OACN, Naples ‣ For the European Researcher’s Night - Science4All in Padua	Jan 2025 Nov 2023 Sep 2023

CONFERENCES & TALKS

PANELIST	Gravitational Wave Snowballs (Workshop) - <i>Sexten Center for Astrophysics</i> , Sexten	Info - Jan 2025
INVITED	IGR Student Seminar - <i>Institute for Gravitational Research</i> , Glasgow (online) Heraeus Summer School - <i>Friedrich Schiller Universität Jena</i> , Jena Astromeeing INAF-OACN (“Geppina Coppola” prize) - <i>INAF - OACN</i> , Naples Spring Workshop on Physics of Data - <i>AI Society - University of Padua</i> , Venice	Jun 2025 Info - Sep 2024 Video - Nov 2023 Info - Apr 2023
CONTRIBUTED	EAS 2025 (2 talks) - <i>University College</i> , Cork Stars II: current challenges, upcoming solutions - <i>CNR Research Area</i> , Bologna XV Einstein Telescope Symposium - <i>CNR Research Area</i> , Bologna (online) Galaxy Coffee - <i>Max Planck Institute for Astronomy</i> , Heidelberg National Congress on Compact Objects (CNOC XIII) - <i>INAF-OAC</i> , Alghero 1st TEONGRAV workshop - <i>Sapienza University of Rome</i> , Rome 41st LIAC: The eventful life of massive star multiples - <i>Université De Liège</i> , Liège The Renaissance of Stellar Black-Hole Detections - <i>Lorentz Center</i> , Leiden	Info - Jun 2025 Info - Jun 2025 Info - May 2025 Info - Mar 2025 Info - Sep 2024 Info - Sep 2024 Info - Jul 2024 Info - Jun 2023

POSTERS	59th Rencontres de Moriond - Gravitation - <i>Rencontres de Moriond</i> , La Thuile 360° Approach to Common Envelope Evolution - <i>ICCUB</i> , Barcelona (online) Post-PAX meeting - <i>Harvard-Smithsonian Center for Astrophysics</i> , Boston (online)	Info - Apr 2025 Info - Jun 2024 Aug 2022
ATTENDED	First ACME workshop - <i>ACME Center</i> , Toulouse (online) EAS 2024 - <i>Padova Congress</i> , Padua Machine Learning 4 Astrophysics (Workshop) - <i>Studio Villa Bosch</i> , Heidelberg Spring Workshop on Physics of Data - <i>AI Society</i> - <i>University of Padua</i> , Venice	Info - Apr 2025 Info - Jul 2024 Info - Jun 2024 Info - Apr 2022

PUBLICATIONS

FIRST-AUTHOR	Wolf-Rayet – compact object binaries as progenitors of binary compact objects Korb E. , Mapelli M., Iorio G., Costa G., Dall’Amico M. Mar 2025 - <i>A&A</i> , 695, A199	doi.org/10.1051/0004-6361/202452585
CO-AUTHOR	Optically thick winds of very massive stars suppress intermediate-mass black hole formation Torniamenti S. et al. (incl. Korb E.) Oct 2025 - <i>Accepted for publication on A&A</i>	arxiv.org/abs/2510.12465
	Metal-poor single Wolf-Rayet stars: the interplay of optically thick winds and rotation Boco L. et al. (incl. Korb E.) Nov 2025 - <i>A&A</i> , 703, A243	doi.org/10.1051/0004-6361/202556187
	Impact of accretion-induced chemically homogeneous evolution on stellar and compact binary populations Dall’Amico M. et al. (incl. Korb E.) Mar 2025 - <i>A&A</i> , 695, A221	doi.org/10.1051/0004-6361/202453543
	The boring history of Gaia BH3 from isolated binary evolution Iorio G. et al. (incl. Korb E.) Oct 2024 - <i>A&A</i> 690, A144	doi.org/10.1051/0004-6361/202450531
	Compact object mergers: exploring uncertainties from stellar and binary evolution with SEVN Iorio G. et al. (incl. Korb E.) Sep 2023 - <i>MNRAS</i> 524, 426	doi.org/10.1093/mnras/stad1630
PROCEEDING	Compact objects with Wolf-Rayet companions: a key binary configuration to produce gravitational wave mergers Korb E. Dec 2024 - <i>Bulletin de la Société Royale des Sciences</i> , 93, 3, 363-373 <i>Contribution to 41st LIAC conference</i>	doi.org/10.25518/0037-9565.12414
ET COLLAB.	The Science of the Einstein Telescope (ET blue book) Einstein Telescope collaboration (incl. Korb E.) Mar 2025 - <i>Submitted to JCAP</i>	arxiv.org/abs/2503.12263
LISA UCBCG	BinCodex. LISA BPS Common Output Format v. 1.1.0 Valli R., Graziani L., and the LISA Synthetic UCB Catalogue Group (incl. Korb E.) Apr 2024 - <i>Non refereed</i>	arxiv.org/abs/2311.03431

REVIEWER EXPERIENCE

APJ & APJS	Astrophysical Journal & Astrophysical Journal Supplement Series	Articles reviewed: 2
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MEMBERSHIPS & COLLABORATIONS

2022 - NOW	LISA - Core member of the Laser Interferometer Space Antenna Consortium	Info
2022 - NOW	LISA Synthetic UCB Catalogue Group - Contributor for the SEVN catalogues	Info
2022 - 2025	ET - Past member of the Einstein Telescope collaboration	Info
2022 - 2025	TEONGRAV - Past member of the Theory of Gravitational Wave Sources collaboration	Info
2022 - 2025	INFN - Formerly affiliated to the Italian Institution for Nuclear Physics; Section of Padua	Info
2020 - 2025	DEMOBLACK - Former member (now external collaborator) of the ERC-funded group of M. Mapelli	Info

SOFTWARE SKILLS

ADVANCED	Python (<i>Numpy, Matplotlib, Seaborn, Plotly, Pandas, Dask, Polars, Scipy, Sklearn, Pytorch, Keras, Tensorflow, Emcee, RegEx, Streamlit, Altair</i> ; Jupyter, IDLE), L ^A T _E X (TeXstudio, Overleaf), Slurm (Queue scheduler for HPC), Conda, Git, Linux, Windows, SEVN (Population-synthesis; C++), MESA (Stellar evolution)
INTERMEDIATE	C++, Fortran90, Markdown, Bash, Stellarium (scripting plugins for outreach), Inkscape/GIMP (Graphics)
BASIC	SIMBAD, NED, ALADIN, SAOImage DS9, TOPCAT, JAGS (Gibbs sampler), Olive (video editing)

SOFTWARE DEVELOPMENT PORTFOLIO

SINCE 2020	Open-source population-synthesis code SEVN (co-developer & maintainer)	 SEVN project  Repository
SINCE 2019	Live-dashboard to monitor high-tides in Venice lagoon	 Dashboard  erikakorb/AcquaAlta
2023	Stellarium plugin to illustrate equinox precession for outreach purposes	 erikakorb/stellarium

LANGUAGES

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