Davide De Grandis
(he/him)

Born
20 Dec 1994
Venice, Italy

Nationality
Italian

davdg.github.io
degrandis@ice.csic.es
davdegra@gmail.com
(+34) 611-836020

ORCiD
0000-0001-5438-0908

Davide De Grandis, PhD

Curriculum vitæ et studiorum (as of September 29, 2025)

Education

2018 - 2022, University of Padova (Italy)
PhD in Astronomy, supervisors Prof. Roberto Turolla, Dr. Roberto Taverna; Thesis: *Coupling Magnetic and Thermal evolution of Neutron Stars: a 3D approach*, defended on March 14th, 2022 and approved *cum laude*

2016 - 2018, University of Padova (Italy)
Laurea Magistrale (MSc) in Theoretical Physics, Thesis title: *Thermal Evolution of Neutron Stars*, Final mark 110/110 *cum laude*

2013 - 2016, University of Padova (Italy)
Laurea Triennale (BSc) in Physics, Final mark 106/110

Research Jobs

Dec 2024 – Present, Institute of Space Sciences (ICE-CSIC) Barcelona (Spain)
Juan de la Cierva fellow (2 year fellowship awarded with a national competition)

May 2023 – Nov 2024, Institute of Space Sciences (ICE-CSIC) Barcelona (Spain)
Postdoctoral fellow within the MAGNESIA ERC project, PI Nanda Rea

Apr 2022 – Apr 2023, INAF-IASF Milano (Italy)
Assegno di Ricerca (post-doc) on *High-Energy observations of Stellar-mass Compact Objects*, PI Sandro Mereghetti

Teaching and Supervising Experience

2024 - 2025, ICE-CSIC (Spain)
Supervision of the TFG ($\sim$ bachelor final dissertation) of Ms. L Salazar; mentoring in the JAE intro program (introduction to advanced research of outstanding students) for Mr. E. Lizalde (now undergraduate at Cambridge University)

2020 - 2022, University of Padova (Italy)
Mentoring for the final dissertation for the MSc in Physics of Dr. A. Gnarini (now postdoc at the University of Roma Tre) and the MSc in Astrophysics and Cosmology of Ms. E. Lucchetta

2017 - 2021, University of Padova (Italy)
Support Teacher for General Physics courses (classical electromagnetism) for the BSc in several curricula in Engineering, 300+ students in total

Publications & Talks

Publications in refereed Journals
D. De Grandis, N. Rea, K. Kovlakas, F. Coti Zelati, D. Viganò, S. Ascenzi, J.A. Pons, R. Turolla, S. Zane, *Magnetar outburst models with cooling simulations*, Astronomy and Astrophysics, vol. 701, Art. no. A229, EDP, Sep. 2025. doi:10.1051/0004-6361/202554666.

Davide De Grandis
(he/him)

Born
20 Dec 1994
Venice, Italy

Nationality
Italian

davdg.github.io
degrandis@ice.csic.es
davdegra@gmail.com
(+34) 611-836020

ORCiD
0000-0001-5438-0908

K. Kovlakas, **D. De Grandis**, and N. Rea. *Neutron star envelopes with machine learning: a single-hidden-layer neural network application*, arXiv e-prints, arXiv:2509.03090, 2025. doi:10.48550/arXiv.2509.03090. In print for A&A.

M. Rigoselli, R. Taverna, S. Mereghetti, R. Turolla , G. L. Israel, S. Zane, L. Marra, F. Muleri, A. Borghese, F. Coti Zelati, **D. De Grandis** et al., IXPE detection of highly polarized X-rays from the magnetar 1E 1841-045., ApJL, 985, L34, June 2025, doi:10.3847/2041-8213/adbffb

M. Rigoselli, **Davide De Grandis**, S. Mereghetti, and C. Malacaria, Timing the X-ray pulsating companion of the hot-subdwarf HD 49798 with NICER, MNRAS, 523.2: 3043-3048, August 2023.doi:10.1093/mnras/stad1611

Davide De Grandis, M. Rigoselli, S. Mereghetti, G. Younes, P. Pizzochero, R. Taverna, A. Tiengo, R. Turolla, and S. Zane, Two decades of X-ray observations of the isolated neutron star RX J1856−3754: detection of thermal and non-thermal hard X-rays and refined spin-down measurement, MNRAS, 516(4):4932–4941, November 2022.doi:10.1093/mnras/stac2587

Davide De Grandis, R. Turolla, R. Taverna, E. Lucchetta, T. S. Wood, and S. Zane, Three-dimensional Magneto-Thermal Simulations of Magnetar Outbursts, ApJ, 936(2):99, September 2022. doi:10.3847/1538-4357/ac8797

M. Rigoselli, S. Mereghetti, R. Taverna, R. Turolla, and **Davide De Grandis**. Strongly pulsed thermal X-rays from a single extended hot spot on PSR J2021+4026. A&A, 646:A117, February 2021. doi: 10.1051/0004-6361/202039774

Davide De Grandis, R. Taverna, R. Turolla, A. Gnarini, S. B. Popov, S. Zane, and T. S. Wood. X-Ray Emission from Isolated Neutron Stars Revisited: 3D Magnetothermal Simulations. ApJ, 914(2):118, June 2021. doi: 10.3847/1538-4357/abfdac

Davide De Grandis, R. Turolla, T. S. Wood, S. Zane, Roberto Taverna, and K. N. Gourgouliatos. Three-dimensional Modeling of the Magnetothermal Evolution of Neutron Stars: Method and Test Cases. ApJ, 903(1):40, November 2020. doi:10.3847/1538-4357/abb6f9

Preprints & Review papers

N. Rea and **D. De Grandis**. Magnetars, chapter for the Encyclopedia of Astrophysics (edited by I. Mandel, section editor J. Andrews) to be published by Elsevier as a Reference Module.https://arxiv.org/abs/2503.04442

K. N. Gourgouliatos, **Davide De Grandis**, A. P. Igoshev. Magnetic Field Evolution in Neutron Star Crusts: Beyond the Hall Effect (Review paper), Symmetry, 14(1):130, January 2022. doi: 10.3390/sym14010130

Talks

- July 2025, contributed talk at the 2025 EAS meeting, session SS13c *Highly magnetised neutron stars under the spotlight*, Cork (Ireland)
- June 2025, invited review talk at the 2025 Frascati Workshop *Multifrequency behaviour of high-energy cosmic sources*, Mondello (Italy)
- December 2024, talk at the IReNA-INT workshop "Thermal and magnetic evolution of neutron stars" (invitation-only event),Seattle, WA (USA)
- July 2024, invited talk at the 45th COSPAR scientific assembly, session E1.17 *Constraining the behaviour of ultra-dense matter using weakly magnetized neutron stars*, Busan (South Korea)

Davide De Grandis
(he/him)

Born
20 Dec 1994
Venice, Italy

Nationality
Italian

davdg.github.io
degrandis@ice.csic.es
davdegra@gmail.com
(+34) 611-836020

ORCiD
0000-0001-5438-0908

- June 2024, contributed talk at the XMM-Newton 2024 science workshop *The X-ray Mysteries of Neutron Stars and White Dwarfs*, Madrid (Spain)
- September 2022, contributed talk at the 12th National Congress of Compact Objects (CNOC), Cefalù (Italy)
- November 2021, Contributed talk at the IAU Symposium 363 *Neutron Star Astrophysics at the Crossroads* (online event)
- March 2021, Invited presentation at the MSSL seminar cycle on Neutron Stars (UK)
- March 2020, Student talk at the 56th Karpacz School in Theoretical Physics *Superfluidity and Transport for Multimessenger Physics of Compact Stars* (Poland)
- November 2019, Contributed talk at the 11th National Congress of Compact Objects (CNOC), Florence (Italy)

Misc academic

I served as referee for *Astrophysics and Space Science*, *Astronomy & Astrophysics* and *The Astrophysical Journal*.

As part of the New Athena Science Community, I am currently serving as a Lead for the redefinition of the Science Objective 0026: *isolated NSs, Magnetars, CCOs*.

Skills

Programming & Software

- Linux Systems
- HPC facilities
- FORTRAN
- IDL
- Python
- C++
- XSPEC
- LaTeX

Languages

- Italian (native)
- Spanish (intermediate)
- English (fluent)
- Russian (basic)

Interests

Professional

High-Energy Astrophysical Phenomena, Neutron Stars, Numerical Modelling, Strong Magnetic Fields

Personal

Classical music (I play the piano and the pipe organ, and I have experince in the organisation of organ concerts), Reading