

Davide De Grandis
(he/him)

Born

20 Dec 1994
Venice, Italy

Nationality
Italian

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Davide De Grandis, PhD

Curriculum vitae et studiorum (as of January 29, 2025)

Education

2018 - 2022, University of Padova (Italy)

PhD student 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 Work

Dec 2024 – Present, Institute of Space Sciences (ICE-CSIC) Barcelona (Spain)

Juan de la Cierva fellow (2 year fellowship 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

Other Academic Experience

2020 - 2022, University of Padova (Italy)

Mentoring for the final dissertation for the MSc in Physics of A. Gnarini (now PhD student at the University of Roma Tre) and the MSc in Astrophysics and Cosmology of E. Lucchetta

2018 - present, University College London (UK)

Honorary Research Fellow at the Mullard Space Science Laboratory (MSSL), Department of Space and Climate Physics

2017 - 2021, University of Padova (Italy)

Support Teacher for General Physics courses (classical electromagnetism) for the BSc in Biomedical, Information, and Chemical Engineering

Publications & Talks

Publications in refereed Journals

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


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

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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. 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

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 RXJ1856–3754: 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

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

Preprints & Review papers

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

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. arXiv preprint arXiv:2412.15811. 2024 Dec 20.

Talks


- December 2024, talk at the IReNA-INT workshop “Thermal and magnetic evolution of neutron stars” (invitation-only event), *Modelling Magnetar Outbursts as Short-Term Crustal Cooling Events*, 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)
- 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)

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Skills

Programming & Software

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

Languages

- Italian (native)
- English (fluent)
- Spanish (intermediate)
- 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 experience in the organisation of organ concerts), Reading