

# Dr Matin Topinka, PhD — Curriculum Vitae

## Personal

Born 9/91976 in Praha, Czech Republic

## Education

- 2011 PhD Degree in Physics, University College Dublin, Faculty of Physics, Dublin, Ireland.  
Thesis: Studies of Cosmic Gamma-Ray Bursts and a Search for Other Short Transient Events Detected by the INTEGRAL Satellite. Supervised by prof. L. Hanlon.
- 2004 Doctoral Exam in Theoretical Physics & Astrophysics, Charles University, Faculty of Math & Physics, Prague, Czech Republic
- 2003 2003 Master Degree in Astronomy & Astrophysics, Charles University, Faculty of Math & Physics, Prague, Czech Republic  
Thesis: Gamma-Ray Bursts: The Origin and Correlations. Supervised by prof. R. Hudec

## Work Experience

- 2023 - today Researcher at Astronomical Observatory of Cagliari, INAF, Italy.  
Multi-frequency studies of Fast Radio Bursts. Search for high energy counterparts. Pipeline for the CHORD FRB search, RFI sifter. Member of CHORD FRB and CHOD RFI science working groups. Machine Learning, HPC. In collaboration with the Perimeter Institute and McGill University.
- 2021-2023 Postdoc at Institute of Space Astrophysics and Cosmic Physics, IASF-INAF, Milano, Italy.  
Studies of isolated neutron stars, magnetars, soft gamma-ray repeaters and gamma-ray bursts with prof. S. Mereghetti.
- 2020-today Postdoc and lecturer at Masaryk's University Brno, Czech Republic.  
Researcher in the High Energy Astrophysics group. Cubesats (Vzlsat-2, GRBAlpha and HERMES). Data processing, localisation strategies. Science for QUVIK space mission dedicated to study gamma-ray bursts and kilonovae. Machine Learning trans-disciplinary specialist.  
Lecturing the courses of Machine Learning, Python, Data processing and HEA.
- 2016-2020 JWST researcher at Dublin Institute for Advanced Studies, Dublin, Ireland  
A James Webb Space Telescope (Co-PI prof. Tom Ray) team member. A programmer of the data reduction pipeline, MIRISIM simulator core programmer, the author of the SkySim. A member of the high-z and the exoplanet JWST science working groups. A pioneer of the Machine Learning.
- 2011-2014 Postdoc at University College Dublin, Faculty of Physics, Dublin, Ireland  
Operational manager and the Deputy for the Watcher Robotic Telescope in the Space Science group (PI prof. L. Hanlon. Integration of the telescope in the Global Robotic Telescope Intelligent Array. Teaching Python and HEA.
- 2008 HPC programmer at Sprint, HPC division, Prague, Czech Republic. High performance computing, parallel computing design patterns.

## Awards

- Marie Curie EARA fellowship at Max-Planck Institute for Astrophysics in Garching, Germany (2005-2006)

## Publication summary

285 ADS publication records, 706 citations, H-index: 15 (from <http://adsabs.harvard.edu>)

## Selected Training

- Julia for Astronomy & Astrophysics bootcamp (Fergus Baker, UK, 2025)
- N-Ways to GPU programming Bootcamp (Vienna, Austria, 2025)
- Statistics for Astronomy Summer School (PennState University, USA, 2024)
- Machine Learning MasterClass (Bicocca University, Milano, Italy, 2023)
- Introduction to Deep Learning (MIT, California, USA, 2023)
- 3rd Brera Astrostatistics School: Bayesian Methods for Astronomy (Brera Observatory, Milano, Italy, 2022)
- BigSkyEarth Training School: Big Data in Simulations and Observations (Tuorla Observatory, Finland, 2018)
- G-Node Advanced Scientific Programming in Python summer school (Institute of Experimental and Applied Physics, Christian-Albrechts University in Kiel, Germany, 2012)

## Leadership & Mentoring experience

- Diploma Thesis Supervisor of M. Chobola, Machine learning enhanced transient detection (Brno, Czech Republic 2021-2023)
- PhD Thesis Advisor of T. Plšek, Machine learning AGN cavity detection (Brno, Czech Republic 2020-2022)

## Teaching experience

- Lecturer at Masaryk's University, courses: Machine Learning for Astronomers in Python; Advanced Methods of Data Analysis; High Energy Astrophysics; Python for Physicists; Advanced Python for Physicists. (Brno, Czech Republic 2021-Today)
- Lecturer ESA JWST Masterclass, courses: JWST (Koln, Germany 2020)
- Lecturer at Europlanet Summer school, courses: Ground based observations (Vilnius, Lithuania 2019)
- Lecturer at DIAS, courses: Introduction to Machine Learning for Astronomers; Introduction to Gaussian Processes (Dublin, Ireland 2018)
- Lecturer at the 5th and 6th Byurakan Summer School, courses: Modern Statistical Methods in Astronomy; Monte Carlo Statistical Algorithms; Machine Learning in Astronomy (Yerevan, Armenia 2016, 2018)
- Lecturer at the Czech Technical University, courses : Semestral courses on Application Machine learning in astronomy; High energy astrophysics (Prague, Czech Republic, 2015)
- Lecturer at UCD, courses : School on Gamma-Ray Bursts; Python for Scientific Computing; 2nd year course of Astronomy, lab of Physics and Electronics (Dublin, Ireland, 2014)

## Public outreach

- Lecturer at Talnet youth education: Lecture Series on Astronomy & Modelling I., II., III. and IV, Special and General Theory of Relativity (Czech Republic 2019-2021)
- Lecturer at DCU : Lecture course series for CTYI (Centre for Talented Youth Ireland) Astronomy and Astrophysics. (Dublin, 2019)
- Several TV, radio interviews, e.g. ČT 90' special edition on JWST
- Open nights at Dunsink Observatory, Dublin, Irish Astronomy Society
- Speaker at Astro-aperitivo lecture sessions in Cagliari

## Research area keywords

- High Energy Astrophysics: Gamma-Ray Bursts, Magnetars, Kilonovae, Supernovae, Fast Radio Bursts, Gravitational Waves counterparts
- Simulations, Modelling, (Bayesian) Statistics, data mining and processing pipelines
- Programming: Python, C/C++, Matlab, Julia, SQL, R, Linux
- Machine Learning applications in astronomy
- High Performance Computing, PBS
- Large space missions: JWST, Swift, INTEGRAL, FERMI, CGRO
- CubeSats: GRBAAlpha, Vzlusat-2, HERMES, QUVIK
- Telescopes: Watcher, BART, Bootes, D50, FRAM. SRT, CHORD

## Others

Member of the Einstein Telescope, CzechLISA, THESEUS mission and QUVIK cubesat mission

## Selected talks

I have given over 50 talks in seminars and/or conferences (>25 invited) and over 30 other conference contributions, such as posters.

- *Machine Learning RFI vs FRB sifting* , Fast Radio Burst 2025 conference, Montreal, Canada, 2025
- *Search for high-energy counterparts of selected FRB repeaters in the INTEGRAL data* , Fast Radio Burst 2025 conference, Bologna, Italy, 2025
- *Magnetars as a possible sub-population of short gamma-ray bursts*, New York University Abu Dhabi, UAE, 2024
- *SGR 1806-20 activity spanning 20 years of INTEGRAL* , XIV. workshop on Multifrequency Behaviour of High Energy Cosmic Sources, Mondello, Italy, 2023
- *QUVIK - the kilonovae UV hunter* , University of Ferrara, Italy, 2022
- *Unusual Flare from GRB 190919B* , The 5th Gamma-ray burst Symposium, Trieste, Italy, 2022
- *JWST deep field automatic galaxy classification* , Astronomical Institute of the Charles University, Prague, Czech Republic, 2021
- *Identification of the JWST high-z double core galaxies* , Python in Astronomy, Dublin, Ireland, 2020
- *Machine Learning high-z catalog rendering for the JWST deep field* , Multi-frequency Conference, Palermo, Italy, 2019
- *Simulating high-z galaxies in the JWST deep field (Machine learning approach)* , IBWS conference, Karlovy Vary, Czech Republic, 2019x