

PERSONAL INFORMATION Vincenzo Mariani

WORK EXPERIENCE

March 2025 – June 2025

Research collaborator

Radio Science Laboratory, CRAS, DIMA - Sapienza University of Rome, Rome, Italy

Nov 2024 – Dec 2024

Postdoctoral researcher

CNRS, Geoazur Lab. - Observatoire de la Côte d'Azur, Nice, France

Investigation of alternative modelling for the Main Asteroid Belt in planetary ephemerides by mean of supervised learning techniques.

EDUCATION AND TRAINING

Nov 2021 – Oct 2024

PhD - Doctorat en Sciences de la Planète et de l'Univers

Geoazur Lab. - Observatoire de la Côte d'Azur, Université Côte d'Azur, Nice, France.

Excellence fellowship provided jointly by the EUR-SPECTRUM consortium of Université Côte d'Azur and CNES (French Space Agency). Doctorat en Sciences de la Planète et de l'Univers.

- PhD Thesis: *Bayesian and supervised learning methods for planetary orbit construction*
- PhD supervisor: Prof. Agnès Fienga
- PhD defense: degree earned on November 8, 2024
- Link to the manuscript: <https://theses.hal.science/tel-04905445>

2019 – 2021

Master of Science in Mathematics - Laurea Magistrale in Matematica

Major in celestial mechanics, University of Pisa, Pisa, Italy – Final grade: 110/110 cum Laude

- Master Thesis: *Reentry from Libration Point Orbits: trajectory design and ground uncertainty*
- Master thesis supervisors: Prof. Giacomo Tommei and Dr. Elisa Maria Alessi
- Exams GPA: 29.3/30. Degree earned on September 24, 2021.

PUBLICATIONS

Publications on peer-review journals - as 1st author

2. *Bayesian test of Brans–Dicke theories with planetary ephemerides: Investigating the strong equivalence principle* (with Olivier Minazzoli, Agnès Fienga, Jacques Laskar and Mickaël Gastineau) - *Astronomy & Astrophysics*, 682, A175 (2024) – Published online: 23 February 2024 DOI: <https://doi.org/10.1051/0004-6361/202348082>
1. *Bayesian test of the mass of the graviton with planetary ephemerides* (with Agnès Fienga, Olivier Minazzoli, Mickaël Gastineau, and Jacques Laskar) - *Physical Review D* 108, 024047 – Published online: 20 July 2023 DOI: 10.1103/PhysRevD.108.024047

PREPRINT PAPERS ON ARXIV

2. *Boosting decision trees for Main Belt Asteroid selection in planetary ephemerides: an alternative model* (with Agnès Fienga, Zachary Murray, Mickaël Gastineau and Jacques Laskar) - submitted - Arxiv DOI: <https://doi.org/10.48550/arXiv.2505.10487>
1. *Testing the mass of the graviton with Bayesian planetary numerical ephemerides B-INPOP* (with Agnès Fienga and Olivier Minazzoli) Arxiv DOI: <https://arxiv.org/abs/2303.05298>

SCHOOLS AND CONFERENCES

- *56th Rencontres de Moriond 2022 - Gravitation* - La Thuile (Aosta), Italy; January 30 - February 6, 2022 (<https://moriond.in2p3.fr/2022/Gravitation/>)
- *Bayesian Deep Learning Workshop for Cosmology and Time Domain Astrophysics #2 - AstroParticule & Cosmologie (APC)* – Paris, France; June 20-24, 2022 (<https://astrodeep.net/workshop2022/>) - Poster presentation
- *Journées d'Accueil Jeunes Chercheurs CNES - JC1* - Centre Spatial de Toulouse, CNES Toulouse, France ; October 10-11, 2022 (<https://cnes-jc1.fr/promotion-2021-annie-easley/>)
- *57th Rencontres de Moriond 2023 - Gravitation* - La Thuile (Aosta), Italy; March 18 - 25, 2023 (<https://moriond.in2p3.fr/2023/Gravitation/>) - Speaker
- *Ecole Doctorale SFA 2nd year PhD Workshop* - Sophia-Antipolis, France; May 25, 2023 - Poster presentation
- *Journées des systèmes de référence spatio-temporels 2023: Temps et Relativité Générale* - Campus Valrose, Nice, France; September 11-13, 2023 (<https://journees2023.sciencesconf.org/>) - Speaker
- *10th Astronomical Data Analysis Summer School* - Hersonissos, Crete, Greece; September 18-22, 2023 (<https://ada10.cosmostat.org/>)
- *Journées d'Accueil Jeunes Chercheurs CNES - JC2 - 23rd edition* - Cité de l'Espace, Toulouse, France; 11-13 October, 2023 (<https://cnes-jc2.fr/jc2-2023/>) - Speaker and poster presentation
- *Dynamics and physics in the solar system* - University of Pisa, Pisa, Italy ; June 18-21, 2024 (<http://2024fm.dm.unipi.it/>) - Speaker
- *24th BepiColombo Science Working Team meeting* - Sapienza University of Rome, Rome, Italy ; June 10-13, 2025 (<https://www.cosmos.esa.int/web/bepicolombo-swt/bepicolombo-swt-24>)

SOFTWARE AND PROGRAMMING

Programming BASH, C, PYTHON, MATLAB, R
 Software UNIX/Linux OS, L^AT_EX, Microsoft Windows, LibreOffice, GODOT (ESA/ESOC)

ORGANIZATION

- Member of the Local Organizing Committee for the conference *Journées des systèmes de référence spatio-temporels 2023: Temps et Relativité Générale* (<https://journees2023.sciencesconf.org/>) held from 11 to 13 September 2023 in Nice at Université Côte d'Azur and Observatoire de la Côte d'Azur.

TEACHING

- 20h of laboratory classes for the course *The BepiColombo Mission*, Master in Astrophysics and Space Science of Université Côte d'Azur.

SERVICE

- I have been reviewer for the journal Physics Letters B.

LANGUAGES

Mother tongue Italian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1/C2	C1/C2	C1	C1	C1
French	B1	B2	B1	B1	B1

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
[Common European Framework of Reference for Languages](https://europa.eu/europass/levels)

Place and date: Roma, 04/08/2025

Signature: Dr. Vincenzo Mariani