Europass Curriculum Vitae

Personal information

Name / Surname	**Matteo Teodori**
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Nationality	Italian
Date of birth	22/07/1997

Research experiences

December 2022 - Now	**PhD student at University of Campania "Luigi Vanvitelli"** in collaboration with **INAF - Osservatorio Astronomico d'Abruzzo** studying the dynamical evolution and multiple-populations in Globular Clusters. Supervisors: Prof. Oscar Straniero and Prof. Lucio Gialanella.
June 2022 - November 2022	**Studentship at INAF-IAPS** entitled "Activity of study and formation of planetary structures, through modelling and/or remote sensing and/or laboratory data" concerning the projects "ExoMars", "Dawn" and "TRIS". Study of the numerical methods of Smoothed Particle Hydrodynamics for the simulation of hydrodynamic phenomena of interest for the mentioned projects.
February 2022 - June 2022	**Stage at INAF - Astronomical Observatory of Rome**, finalized at learning the mathematical techniques of the "Information Field Theory" and their application to astronomical data, with reference to the high-contrast images produced within the SHARK-VIS project, an instrument intended for the LBT telescope for deep detection of exoplanets through direct images.
From Dec. 2021	**Research activities at the Physics Department - University of Rome "La Sapienza"**, concerning the study of multi-mass models for Globular Clusters.

Education

16th November 2021	**Master degree in Astronomy & Astrophysics, University of Rome "La Sapienza", *cum laude***. Thesis title: Gravothermal catastrophe in models of Globular Clusters with a mass distribution. Supervisor: Prof. Marco Merafina.
1st October 2019	**Bachelor's degree in Physics, University of Rome "La Sapienza", degree mark 104/110**. Dissertation title: Carbon ignition curves for massive stars. Supervisor: Prof. Oscar Straniero

Research Interests

Stellar dynamics, collisional systems, Globular Clusters, stellar systems and populations, gravothermal catastrophe, formation, evolution and stability of self gravitating systems. I am also interested in topics concerning gravity, stellar formation and evolution, dark matter, planetary sciences and numerical methods for simulations and data analysis.

Pubblications

2022	Merafina M. and Teodori M., "Generalization of the Fokker-Planck equation for stellar orbit diffusion in multi-mass star systems" [arXiv: 2205.10209]

Collaborations

Active

– Participation to scientific meetings of the research group lead by Prof. Marco Merafina at University of Rome "La Sapienza", concerning a research project entitled "Stellar evolution and dynamical evolution in Globular Clusters: theoretic development and N-body simulations".

– Collaboration with INAF-IAPS for the study of volatiles emission from planetary surface and fractures using a Smoothed Particle Hydrodynamics (SPH) approach. Member of to the International Space Science Institute (ISSI) group led by Dott. Michelangelo Formisano, for the project "Thermophysical characterization of ice-rich areas on the surface of specific planetary bodies: conditions for the formation of a transient exosphere", active in the development of SPH codes able to collaborate with Eulerian codes.

Past

– Collaboration with INAF-OAR for the development of codes for High Contrast Imaging for the SHARK-VIS project, finalized at the direct detection of extrasolar planets.

Conferences/workshops

8-12 May 2023 — Biennial European Astrobiology Conference BEACON 2023, La Palma & Teneguia Princess Hotel on Fuencaliente, La Palma Island (Canary Islands, Spain). Poster: *Volatiles emission from a cavity on a planetary surface using smoothed particle hydrodynamics*.

6-10 February 2023 — XVIII Congresso Nazionale di Scienze Planetarie, Perugia. Talk: *Volatiles emission from a fracture on a planetary surface: a Smoothed-Particle-Hydrodynamics approach*.

14th November 2022 — G11 Workshop, Physics Department, University of Rome "La Sapienza". Talk: *Multi-mass collisional stellar systems models for Globular Clusters*.

Seminars

16th February 2023 — INAF-OOAb colloquia - *The interconnection between multi-mass dynamical models and multiple populations in Globular Clusters*, Matteo Teodori (University of Campania *Luigi Vanvitelli*).

PhD schools

2-6 October 2023 — INAF - Scientific Communication in Astronomy School, Bertinoro, Italy.

Personal skills

Mother tongue — **Italian**

Other languages

Self-assessment
European level(*)

	Understanding		Speaking		Writing
	Listening	Reading	Spoken interaction	Spoken production	
English	B1	B1	B1	B1	B1

(*) *Common European Framework of Reference* (CEF) level

IT skills	Intermediate experience in **Office automation** packages, in particular with software for presentation, document elaboration and spreadsheets, refined from Italian secondary school to today. Basic ability in managing videoconferencing. Basic knowledge (2 yrs) of remote control for running numerical simulations using SSH protocols or a remote desktop software (AnyDesk, Splashtop, TeamViewer). Good experience in **data analysis and visualization**, in particular with MATLAB (6 yrs) and Python (2 yrs) acquired during, university courses, thesis work, INAF experiences and PhD project. Document drafting with **LaTeX**, in particular for scientific reports and papers drafting (experience of 6 yrs). Known programming languages: **C** intermediate level (Bachelor's degree thesis and courses, PhD project), **Fortran** intermediate level (Master thesis, PhD project), **MATLAB** (for programming) basic level (PhD course) and **Python** intermediate level (INAF experiences and PhD project).
Communication	Ability of **work in team** practiced during PhD projects for courses, studentship at INAF-IAPS and stage at INAF-OAR, collaborations, university laboratory experiences during Bachelor's degree and in team sports. Mediation skills (construction of dialogue and confrontation environments) and intercultural communication skills developed during volunteer activities as animator.
Organization	Ability of time, information and energies organization, achieved during the university path. Ability to be authoritative, welcoming and listening (volunteer animator). Able to organize and lead team work (students group for courses).
Professional skills	Basic experience (1 yr) with codes for numerical simulations for hydrodynamics (PySPH) and N-body problems (NBODY6++).
Other skills	Fast and continuous learning. Precision and attention to details. Predisposition to problem solving. Flexibility and initiative spirit. Ability to achieve a set goals.
Driving license	B