

PERSONAL INFORMATION **Lorenzo Savino**

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## WORK EXPERIENCE

October 2025 – today **Junior Researcher**

Research on the physics of the IGNITOR tokamak  
Rome, IT DIEE Department, ICI Faculty, Sapienza University.

February 2025 – today **Professor on contract**

Physics for computer engineering (first year bachelor), 3 cfu.  
Rome, IT I3S Faculty, Sapienza University.

November 2024 – today **PostDoc**

Research on developing section of the montecarlo GPU code FRED.  
Rome, IT Department SBAI, Sapienza University.

October 2024 – January 2025 **Tutor - Physics II**

Rome, IT Department of Civil and Industrial engineering, Sapienza University.  
Tutor for physics II exam (B. Sc in Clinics).

March 2024 – May 2024 **Tutor - Physics I**

Rome, IT Department of Civil and Industrial engineering, Sapienza University.  
Tutor for physics I exam (B. Sc in Chemistry Engineering).

March 2024 – May 2024 **Tutor - Physics I**

Rome, IT Department of Civil and Industrial engineering, Sapienza University.  
Tutor for physics I exam (B. Sc in Civil and Ambiental Engineering).

October 2023 – December 2023 **Tutor - Physics II**

Rome, IT Department of Civil and Industrial engineering, Sapienza University.  
Tutor for physics II exam (B. Sc in Energy Engineering).

October 2023 – December 2023 **Tutor - Physics II**

Rome, IT Department of Civil and Industrial engineering, Sapienza University.  
Tutor for physics II exam (B. Sc in Civil, Building, and Environmental Engineering).

March 2023 - November 2023 **Internship**

Darmstadt, DE Focused Energy GmbH  
Theory and simulation of interest for Fast Ignition Inertial Confinement Fusion.

March 2023 – May 2023 **Tutor - Physics I**

Rome, IT Department of Civil and Industrial engineering, Sapienza University.  
Tutor for physics I exam (B. Sc in Energy Engineering).

**September 2022 – January 2023 Tutor - Physics II**

Rome, IT Department of Civil and Industrial engineering, Sapienza University.  
Tutor for physics II exam (B. Sc in Civil, Building, and Environmental Engineering).

**March 2022 – June 2022 Tutor - Physics I**

Rome, IT Department of Chemistry, Sapienza.  
Tutor for physics I exam (B. Sc in Chemistry).

**July 2021 – September 2021 Tutor - Math OFA**

Rome, IT Department of Mathematics of Sapienza University  
Revision of the Sapienza online OFA (Obblighi Formativi Aggiuntivi) platform.

**November 2021– June 2021 Tutor - INFN Lab2Go project**

Rome, IT Sapienza and INFN (Istituto Nazionale di Fisica Nucleare)  
Project in collaboration with the high schools (Licei) of Rome, whose goal is to bring students closer to the world of physics through experiences, lessons and enhancement of the museum heritage of the respective schools.

**EDUCATION AND TRAINING**

**November 2021 – January 2025 PhD (Doctor Europaeus)**

Rome, IT Phd in mathematical models for engineering, electromagnetism and nanosciences at "Scienze di Base Applicate all'Ingegneria" department, Sapienza University of Rome  
Research project: Innovative targets for laser-driven thermonuclear fusion energy: models, simulation, scaled-down experiments (in collaboration with Laboratory of Laser Energetics , University of Rochester USA). In 2023 9 month internship at Focused Energy GmbH .  
Tutors: Professor S. Atzeni and Professor A. Schiavi  
Final grade : Ottimo cum Laude

**May 2023 Doctoral Training School "Plasmas in Extreme Environments: from Astrophysics to the Laboratory"**

Les Houches, FR Organized by LULI, SLAC, GoLP/IPFN, CEA.

**November 2022 Course: Scientific calculation tools and Big data**

IT Sapienza's Soft skills courses for research.

**July 2022 Summer school "Plasmas in Super-Intense Laser Fields"**

Erice,IT Organized by EUROFUSION, Université de Bordeaux, Politecnico di Milano, ENSURE project, HB11, ELI beamlines and ALP.

**March 2022 Course: Parallel computing with MPI and OPENMP**

IT CINECA (PRACE partner), certificate ID: 409D4A50

**November 2021 Course: Fortran for Scientific computing**

IT CINECA (PRACE partner), certificate ID: 3B8A2830

**September 2019 - September 2021 Master Degree in Physics**

- Rome, IT Department of Physics, Sapienza university of Rome  
Curriculum: Particle physics  
Title: Studio di target innovativi per la fusione inerziale via Laser.  
Thesis Advisor: S. Atzeni | Collaboration with university of Rochester NY, USA  
Final grade : 107/110
- June 2021 **Summer school "International School on Energy Energy Innovation and Integration for a Clean Environment"**  
IT Course 6 - Joint EPS-SIF
- 2014–2019 **Bachelor Degree in Physics**  
Rome, IT Department of Physics, Sapienza university of Rome  
Curriculum: physics  
Title: Il filtro ottimo applicato all'esperimento CUORE  
Thesis Advisor: M. Vignati
- 2009–2014 **Scientific high school diploma**  
Naples, IT Liceo Calamandrei  
Final grade : 100/100

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**ACHIEVEMENTS AND AWARDS****2023 Outstanding Presentation by Early Career Scientist**

ES 4th Fusion HPC Workshop  
Award: Free publication on Plasma and controlled fusion journal.

**2021 Best Communication**

IT 107<sup>th</sup> SIF (Società Italiana di Fisica) National congress  
Award: Free publication on " Il Nuovo Cimento C", see Papers section.

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**GRANTS****2024 "Progetti per Avvio alla Ricerca Tipo 2", Sapienza University**

IT 2000 Euro.

**2023 "International Mobility grant for PhD students", Sapienza University**

IT 2100 Euro.

**2022 "Progetti per Avvio alla Ricerca Tipo 1", Sapienza University**

IT 1000 Euro.

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**CONGRESS****2024 19th Direct Drive and Fast Ignition Workshop**

Contributed talk Paris, 21-24 May 2024

**2023 4th Fusion HPC Workshop**

Contributed talk Spain, 29-30 November 2023

**2021 107th SIF (Società italiana Di Fisica) Congress**

Oral contribution Italy, 13-17 September 2021.

## PAPERS

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- [1] L. Savino et al. "Studies on dynamical shell formation for direct-drive laser fusion". In: *Nuovo Cimento C 10* (2022).
- [2] I. V. Igumenshchev et al. "Proof-of-principle experiment on the dynamic shell formation for inertial confinement fusion". In: *Phys. Rev. Lett.* 131, 015102 (2023).
- [3] F. Barbato et al. "Feasibility study of an XPCI diagnostic to observe the evolution of micro-voids in an ICF target". In: *PPCF-104410* (2023).
- [11] L. Savino, A. Schiavi, and S. Atzeni. "A GPU based 3D raytracing algorithm for DUED laser fusion code". In: *Plasma Physics and Controlled Fusion* 66.11 (Sept. 2024), p. 115009.
- [12] F. Barbato, L. Savino, A. Schiavi, D. T. Bishel, V. N. Goncharov, I. V. Igumenshchev, R. C. Shah, E. A. Smith, W. Theobald, D. A. Chin, and S. Atzeni. "Dynamics of implosion, bounce, and re-implosion of a shell directly driven by a time-shaped laser pulse". In: *Physics of Plasmas* 32.1 (Jan. 2025), p. 012704.

## ABSTRACTS

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- [4] L. Savino et al. *Studies on dynamical shell formation for direct-drive laser fusion, Atti del 107 congresso SIF*. 2021.
- [5] I. Igumenshchev et al. *Dynamic Shell Stability to Low-Mode Perturbations, 63rd Annual Meeting of the APS Division of Plasma Physics*. Pittsburgh, PA, USA, 2022.
- [6] W. Trickey et al. *IFE target designs to capitalize on next-gen laser technologies, 64rd Annual Meeting of the APS Division of Plasma Physics*. Spokane, Washington, USA, 2022.
- [7] F. Barbato et al. *X-Ray synthetic diagnostics for laser-driven implosions, 36th European Conference on Laser Interaction with Matter*. 2022.
- [8] L. Savino et al. *A GPU baser raytracing algorithm for DUED code*. 2023.

## POSTERS

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- [9] L. Savino et al. *ICF target with dynamical shell formation: design of a proof -of-principle experiment, Summer school "Plasmas in Super-Intense Laser Fields"*. 2022.
- [10] L. Savino et al. *Experimental Demonstration of dynamically shell formation for DD-IFE, Doctoral Training School "Plasmas in Extreme Environments: from Astrophysics to the Laboratory"*. 2023.

## PROGRAMMING

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Languages C, C++, Fortran, Python, Julia

HPC API MPI, OpenMP, OpenCL, Cuda, SYCL

Frameworks and visualization ROOT, Gnuplot, Numpy/Matplotlib, Julia/Makie

Scripting Bash, Python

Scientific Typesetting L<sup>A</sup>T<sub>E</sub>X

Office MS Office, OpenOffice, Inkscape, Adobe Acrobat

## LANGUAGES

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Mother tongue Italian

Other languages	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	B2	C1	C1
English Certificates: PET, B2+ British Council					
French	A2	A2	A1	A1	A2

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user  
[Common European Framework of Reference for Languages](#)

PERSONAL SKILLS

Digital competences

SELF-ASSESSMENT				
Information Processing	Communication	Content creation	Safety	Problem solving
Proficient user	Proficient user	Proficient user	Proficient user	Proficient user

[Digital competences - Self-assessment grid](#)

EN: In compliance with the Italian legislative Decree no. 196 dated 30/06/2003, I hereby authorize you to use and process my personal details contained in this document.

Intended for publication.

IT: Autorizzo il trattamento dei miei dati personali presenti nel curriculum vitae ai sensi del Decreto Legislativo 30 giugno 2003, n. 196 e del GDPR (Regolamento UE 2016/679).

Ai fini della pubblicazione.