

PERSONAL INFORMATION **Alessio Sereno** [alessio.sereno@uniroma1.com](mailto:alessio.sereno@uniroma1.com)

## WORK EXPERIENCE

November 2023 – present **PhD student**DIMA - University of Rome "La Sapienza"  
Via Eudossiana 18, Rome

Research topics: computational fluid dynamics for internal ballistics and nozzle performance in hybrid rocket engines; RANS turbulence modeling; swirling flows; reactive flows.

June 2022 – October 2023 **Research fellowship**DIMA – University of Rome "La Sapienza"  
Via Eudossiana 18, Rome

Main activities and research topics:

- Computational fluid dynamics
- Conjugate heat transfer in cooling channels
- Multiphase and reactive flows in solid rocket motors
- Cooling systems for liquid rocket engines

**Sector** Rocket propulsion

## EDUCATION AND TRAINING

September 2019 – May 2022 **Master's Degree in Space Engineering**

University of Rome "La Sapienza", Rome, Via Eudossiana 18

Main subjects: Fluid Dynamics and Computational Fluid Dynamics, Solid Rocket Motors, Liquid Rocket Engines, Orbital Mechanics, Space Systems.

Thesis title: "Numerical Analysis of Solid Rocket Nozzle Performance with Two-Phase Flow Effects"

Mark: 110/110

September 2015 – September 2019 **Bachelor's Degree in Aerospace Engineering**

Politecnico di Milano, Milan, Via La Masa 37/B12

Main subjects: mathematics, physics and chemistry; solid mechanics, aerodynamics; orbital and flight mechanics, space missions analysis, propulsion systems.

Mark: 102/110



**PERSONAL SKILLS**

Mother tongue Italian

Other languages

|         | UNDERSTANDING |         | SPEAKING           |                   | WRITING |
|---------|---------------|---------|--------------------|-------------------|---------|
|         | Listening     | Reading | Spoken interaction | Spoken production |         |
| English | C1            | C1      | B2                 | B2                | C1      |

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

**Communication skills** Team work: I have worked in various types of teams, both for projects during the degree course and for research purposes. I am used to learn from others, and to share my knowledge/expertise.

**Organisational skills** Strong commitment and goal orientation.

**Personal traits** I am passionate about my field of study and research, the space propulsion technology. I am a curious, enthusiastic person who likes to take on new challenges and learn.

**COMPUTER SKILLS**

Programming languages

- Fortran: proficient use.
- Matlab: proficient use.
- C: basic knowledge.

Application software

- CFD: CFD++, in-house finite volume solvers.
- Meshing: GMSH, ad-hoc meshing codes.
- Post-processing: Tecplot 360.
- Simulation tools: EcosimPro.
- CAD: Solidworks, Inventor, Solid Edge.

Operating systems

- Windows
- Linux (Ubuntu)

Word processors

- Microsoft Office
- LaTeX

**PUBLICATIONS**

- [1] Marco Grossi, Alessio Sereno, Daniele Bianchi, and Bernardo Favini. “Numerical Simulation of Multiphase Flows in Solid Rocket Motors Nozzles.” In: *AIAA 2022-3270. AIAA AVIATION 2022 Forum*. (2022).
- [2] Marco Grossi, Alessio Sereno, Daniele Bianchi, and Bernardo Favini. “Role of Finite-Rate Kinetics on the Performance Predictions of Solid Rocket Motor Nozzles.” In: *AIAA SciTech 2023 Forum* (2023).
- [3] Marco Grossi, Alessio Sereno, Daniele Bianchi, and Bernardo Favini. “Multiphase Effects on Solid Rocket Nozzle Performance”. In: *Journal of Propulsion and Power* (2023), pp. 1–13.
- [4] Matteo Fiore, Alessio Sereno, Daniele Bianchi, and Francesco Nasuti. “Cooling system design for an upper-stage aerospike”. In: *International Symposium on Space Technology and Science, 3-9 June 2023 Kurume, Japan* (2023).