

# Giovanni Vagnoli

Gran Sasso Science Institute (GSSI)  
Viale Francesco Crispi, 7  
L'Aquila (AQ), 67100, Italy  
✉ [giovanni.vagnoli@gssi.it](mailto:giovanni.vagnoli@gssi.it)



## Education

- 2022–present **PhD, Mathematics**, *Gran Sasso Science Institute (GSSI)*, L'Aquila, Italy.
- 2019–2022 **Master's degree in Aerospace Engineering**, *Cum Laude*, Università di Pisa, Pisa, Italy.  
Wakes and paths of buoyancy-driven permeable disks: a linear stability approach
- 2016–2019 **Bachelor's degree in Aerospace Engineering**, *Cum Laude*, Università di Pisa, Pisa, Italy.
- 2011–2016 **High School graduation in Mechanical Engineering**, *98/100*, ITIS G. Galilei, Arezzo, Italy.

## Scientific interests

I'm mostly interested in complex flows of any kind. I am currently involved in the ERC-starting grant-founded *CARDIOtrials project*, in which a high-fidelity 3D virtual twin of the human heart is built and studied, exploiting the most advanced numerical tools, such as GPU acceleration and parallelisation. Furthermore, my research interests cover fluid mechanics and CFD, fluid-structure interaction and multiphysics flows, hemodynamics, and linear stability analysis.

## Publications

- 2024 G. Corsi, P. G. Ledda, **Giovanni Vagnoli**, F. Gallaire, and A. De Simone. Instability and trajectories of buoyancy-driven annular disks: a numerical study. *Phys. Rev. Fluids*, 2024.
- 2023 **Giovanni Vagnoli**, G. A. Zampogna, S. Camarri, F. Gallaire, and P. G. Ledda. Permeability sets the linear path instability of buoyancy-driven disks. *J. of Fluid Mechanics*, 2023.

## Talks

### Contributed talks

- 2024 **ECCOMAS CONGRESS 2024**, *9th European Congress on Computational Methods in Applied Sciences and Engineering*, Lisboa, Portugal.  
A Local and Explicit Forcing Correction to the Moving-Least-Squares IBM

## Experience

- 2021–2022 **Internship**, *EPFL*, Lausanne CH-1015, Switzerland.  
Six months internship at LFMI (Laboratory of Fluid Mechanics and Instabilities) to complete my Master's thesis project under the direct supervision of Prof. François Gallaire

## Languages

- Italian **Mothertongue**
- English **Intermediate**