Luca Tricarico

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Summary

Enrolled in the 40th DIMSAI PhD program at the University of Bologna, working on the Development of Beam Intercepting Devices (BID) in Liquid Metals. My research centers on thermohydraulic analysis using Computational Fluid Dynamics (CFD) tools, with a specific focus on Heavy Liquid Metals (HLMs).

Education

University of Bologna — *Bologna, IT*

PhD Program in Mechanics and Advanced Engineering Sciences - DIMSAI — *November 2024 - Present*

- Thesis: **Development of Beam Intercepting Devices (BID) in liquid metals**.

University of Bologna — *Bologna, IT*

Master Degree in Energy and Nuclear Engineering — *September 2020 - March 2024*

- Grade: 110/110 and Honors.
- Thesis: **Applications of Heavy Liquid Metals for Particles Accelerators.**.
- **Principal courses:** Heat Transfer and Thermofluid Dynamics, Numerical Methods for Energy Systems, Fundamentals and Applications of Nuclear Energy, Numerical Methods for Mechanical Structures, Thermofluid Dynamics of Two-Phase Systems.

University of Modena and Reggio Emilia — *Modena, IT*

Bachelor Degree in Mechanical Engineering — *September 2016 - July 2020*

- Grade: 96/110.
- Thesis: **Individual Climate Control System**.
- **Principal Courses:** Numerical Methods, Machine Design and Construction), Turbomachinery and Energy Systems.

Experience

Research Center of Brasimone - ENEA Nuclear Department — *Brasimone, IT*

Trainership for thesis — *September 2023 - March 2024*

- Research on Liquid Metal Beam Intercepting Devices (BIDs).
- CFD research activity on the Beam Dump Facility and Muon Collider projects in collaboration with CERN.
- **Technical Skills:** Ansys Fluent, Autodesk Inventor, LaTeX, C/C++, Python.

Conferences

IMCC and MuCol Annual Meeting 2025 — *Hamburg, DE*

Deutsches Elektronen-Synchrotron - DESY — *May 2025*

The 4th Annual Meeting of the International Muon Collider Collaboration and the 2nd MuCol Annual Meeting.

Muon4Future 2025 — *Venezia, IT*

Istituto Nazionale di Fisica Nucleare - INFN — *May 2025*

The 2th Muon4Future workshop 2025.

SERAFIN Workshop — *Bologna, IT*

Italian National Agency for New Technologies, Energy and Sustainable Economic Development - ENEA — *June 2025*

The 2nd ENEA NUC-ENER Division Workshop.

Publication

Articles

CFD investigations on Heavy Liquid Metal alternative target design for the SPS Beam Dump Facility
Marco Calviani; Carlo Carrelli; Antonio Cervone; Pietro Cioli Puviani; Ivan Di Piazza; Luigi Salvatore Esposito; Sandro Manservisi; Giuseppe Mazzola; Luca Tricarico; Rui Franqueira Ximenes.
Energies (2024). 2024

Projects

University of Bologna Argonauts Team - UniBoAt *Bologna, IT*

University of Bologna *September 2022 - September 2023*

- Fuel Cell Cooling System Design using CFD tools.
- Technical and design integration with the component manufacture .
- **Technical Skills:** Ansys Fluent, Autodesk Inventor, LaTeX.

Technical skills

Programming C/C++, Python, Matlab.

Software Matlab and Simulink, Inventor Autodesk, OpenFoam, Ansys Fluent, Paraview.

Languages

English Curriculum certification (B2).

Italian Mathertongue.