

PERSONAL INFORMATION **Lorenzo Melchiorri**

WORK EXPERIENCE

Sept 22 - Feb 23 **Teaching Assistant**

Sapienza University of Rome - Engineering Thermofluids

Teaching assistant of the course Engineering Thermofluids, which belongs to the Energy Engineering Master (English curriculum) at Sapienza. I was primarily responsible for the course site and studying material. Furthermore, I've assisted the students during the Laboratory experimental activities.

2019 - 2020 **Fellow Researcher**

Sapienza University of Rome - Nuclear Energy Research Group (N.E.R.G.)

The one-year experience as a fellow researcher has been focused on developing a set of sub-routines that could extend RELAP5 capabilities. Liquid metals magnetohydrodynamic fundamentals and programming basis have been the main topics studied during the activity.

EDUCATION AND TRAINING

2020 - 2023 **Ph. D. in Energy & Environment**

Sapienza University of Rome - Rome, Italy

Current Status: Coursework and On-campus activities at department of Electrical, Energy and Astronautical engineering (DIAEE)

2015 - 2018 **Master Degree in Energy Engineering - Nuclear curriculum**

Sapienza University of Rome - Rome, Italy

Passed with **110/110**. *Thesis*: Numerical characterization of a magnetohydrodynamic liquid metal flow through an electroconductive orifice.

2012 - 2015 **Bachelor Degree in Energy Engineering**

Sapienza University of Rome - Rome, Italy

Passed with **96/110**. *Thesis*: Neutronic flux measurement on Thermic column of TRIGA RC-1 reactor (ENEA). Preliminary analysis of materials (Indium) activation.

PERSONAL SKILLS

Mother tongue Italian

Other languages	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C2	B2	C1	C2

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

Computer skills – Microsoft Office package - Proficient User
 – Latex - Independent User
 – MATLAB - Independent User
 – Fortran - Independent User
 – Linux/BASH - Independent User
 – ANSYS CFX - Independent User
 – OpenFOAM - Basic User

PUBLICATIONS

- [1] Bongiovì G.; Catanzaro I.; Di Maio P.A.; Arena P.; Melchiorri L. "Exploratory Thermo-Mechanical Assessment of the Bottom Cap Region of the EU DEMO Water-Cooled Lead Lithium Central Outboard Blanket Segment". In: *Applied Sciences* (2023).
- [2] Arena P. et al. "Design and Integration of the EU-DEMO Water-Cooled Lead Lithium Breeding Blanket". In: *Energies* (2022).
- [3] Melchiorri L.; Tassone A.; Caruso G. "Three-dimensional MHD flow in moderate change ratio orifice". PhD thesis. 2022.
- [4] Melchiorri L.; Narcisi V.; Ciurluini C.; Caruso G.; Tassone A. "Preliminary MHD pressure drop analysis for the prototypical WCLL TBM with RELAP5/MOD3.3". In: *Fusion Engineering and Design* (2022).
- [5] Narcisi V.; Melchiorri L.; Giannetti F. "Improvements of RELAP5/Mod3.3 heat transfer capabilities for simulation of in-pool passive power removal systems". In: *Annals of Nuclear Energy* (2021).
- [6] Melchiorri L.; Narcisi V.; Giannetti F.; Caruso G.; Tassone A. "Development of a RELAP5/MOD3.3 module for MHD pressure drop analysis in liquid metals loops: Verification and validation". In: *Energies* (2021).
- [7] Narcisi V.; Melchiorri L.; Giannetti F.; Caruso G. "Assessment of relap5-3d for application on in-pool passive power removal systems". In: *Proceedings of the 30th European Safety and Reliability Conference and the 15th Probabilistic Safety Assessment and Management Conferenc* (2020).