

**PERSONAL INFORMATION** **Lorenzo Melchiorri**

**WORK EXPERIENCE**

2019/2020 **Fellow researcher – Sapienza University**  
 Development of RELAP5/mod3.3 code to insert new features, for fusion reactor project purpose. Analysis of Magnetohydrodynamic literature regarding pressure drop in complex geometry of piping systems.

**EDUCATION AND TRAINING**

2020-ongoing **PhD course in Energy and Environment**  
 Sapienza University of Rome, Italy

2015/2018 **Master’s Degree in Nuclear Engineering**  
 Sapienza University of Rome, Italy  
 – Final score: 110/110  
 – Thesis: Numerical characterization of a magnetohydrodynamic liquid metal flow through an electroconductive

2011/2014 **Bachelor’s Degree in Energy Engineering**  
 Sapienza University of Rome, Italy  
 – Final score: 96/110  
 – Thesis: Neutronic flux measurement on Thermic column of TRIGA RC-1 reactor (ENEA). Preliminary analysis of materials (Indium) activation.

2006/2011 **High School Diploma**  
 L.S.S. Aristotele  
 – Final score: 94/100

**PERSONAL SKILLS**

Mother tongue Italian

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

Computer skills – Google Drive  
 – Microsoft Office  
 – Fortran  
 – Matlab  
 – Python  
 – C++  
 – Computational Fluid Dynamics: CFX, OpenFOAM and Fluent

Driving licence B

**PUBLICATIONS**

- [1] MELCHIORRI LORENZO; TASSONE ALESSANDRO; CARUSO GIANFRANCO. "Numerical characterization of liquid metal MHD flow in electroconductive thick orifices with asymmetric contraction". In: *11th PAMIR International Conference Fundamental and Applied MHD (Reims; France) libro: Proceedings 11th PAMIR International Conference Fundamental and Applied MHD - ()* (2019).
- [2] NARCISI VINCENZO; MELCHIORRI LORENZO; GIANNETTI FABIO; CARUSO GIANFRANCO. "Assessment of relap5-3d for application on in-pool passive power removal systems". In: *30th European safety and reliability conference, ESREL 2020 and 15th Probabilistic safety assessment and management conference, PSAM15 2020 (Venezia) libro: Proceedings of the 30th European safety and reliability conference and the 15th Probabilistic safety assessment and management conference - (978-981-14-8593-0)* (2020).
- [3] MELCHIORRI LORENZO; NARCISI VINCENZO; GIANNETTI FABIO; CARUSO GIANFRANCO; TASSONE ALESSANDRO. "Development of a RELAP5/MOD3.3 module for MHD pressure drop analysis in liquid metals loops. Verification and validation". In: *ENERGIES (Basel : Molecular Diversity Preservation International) pp. 1-29 - issn: 1996-1073 - wos: WOS:000694197400001 (3) - scopus: 2-s2.0-85114484400 (4)* (2021).
- [4] NARCISI VINCENZO; MELCHIORRI LORENZO; GIANNETTI FABIO. "Improvements of RELAP5/Mod3.3 heat transfer capabilities for simulation of in-pool passive power removal systems". In: *ANNALS OF NUCLEAR ENERGY (Oxford: Elsevier Science Limited -Oxford; New York: Pergamon Press.) pp. 1-16 - issn: 0306-4549 - wos: WOS:000661107600055 (1) - scopus: 2-s2.0-85107898082 (2)* (2021).
- [5] MELCHIORRI LORENZO. "Baseline for developing a general OpenFOAM solver for magnetohydrodynamic (MHD) flows". In: *Proceedings of CFD with OpenSource Software, 2021, Edited by Nilsson H.* (2022).
- [6] MELCHIORRI LORENZO; NARCISI VINCENZO; CIURLUINI CRISTIANO; GIANNETTI FABIO; CARUSO GIANFRANCO; TASSONE ALESSANDRO. "Preliminary MHD pressure drop analysis for the prototypical WCLL TBM with RELAP5/MOD3.3". In: *FUSION ENGINEERING AND DESIGN (Elsevier BV:PO Box 211, 1000 AE Amsterdam Netherlands:011 31 20 4853757, 011 31 20 4853642, 011 31 20 4853641, EMAIL: nlinfo-f@elsevier.nl, INTERNET: http://www.elsevier.nl, Fax: 011 31 20 4853598) pp. 1-8 - issn: 0920-3796 - wos: (0) - scopus: 2-s2.0-85123836274 (0)* (2022).
- [7] MELCHIORRI LORENZO; TASSONE ALESSANDRO; CARUSO GIANFRANCO. "Three-dimensional MHD flow in moderate change ratio orifice". In: *Journal of Physics: Conference Series, Volume 2177, 38th UIT Heat Transfer International Conference (UIT 2021) 21-23 June 2021, Cassino, Italy* (2022).