



Alessandro Tassone
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Alessandro Tassone

Research Associate

Experience

Dec 2019 - present, *Research Associate, Sapienza University of Rome*

Main responsibilities:

- Teaching at undergraduate (MEng) and graduate level
 - 2021 (forthcoming): Liquid Metal Magnetohydrodynamics, 3 ETCS
 - 2020 – present: Technology and Physics of Fusion Energy, Technology module, 3 ETCS
 - 2017 – 2019: Numerical Simulation of Nuclear System and Components, 3 ECTS
- Supervision and technical tutor for MEng and PhD students
- Analyst for computational fluid-dynamic (CFD) simulations
 - Computational magnetohydrodynamics for liquid metal flows
 - Turbulent heat transfer for low-Pr fluids
 - Fusion-reactor breeding blanket thermal-hydraulics
- Support to code development for system thermal-hydraulic codes

Jun 2018 - May 2021, *EUROfusion Engineering Grantee, Sapienza University of Rome*

Main responsibilities:

- Development of object-oriented numerical code for computational magnetohydrodynamics (liquid metal)
- Participation in experimental campaigns to collect data for Verification & Validation

Education

2015 - 2019, *Sapienza University of Rome*

PhD in Energy and Environment. *Study on liquid metal magnetohydrodynamic flows and numerical application to a water-cooled blanket for fusion reactors*, dissertation defended 11/02/2019 with grade excellent

2013 - 2015, *Sapienza University of Rome*

MEng in Nuclear and Energy Engineering. *Computational fluid-dynamics simulation of the MHD flow in the Water-Cooled Lithium Lead breeding blanket module*, thesis defended 28/10/2015 with grade 110/110

2009 - 2012, *Sapienza University of Rome*

BEng in Energy Engineering

Software Skills

Programming

Proficient

- Perl

Proficient

- LaTeX

Basic

- C++

CFD codes

Proficient

- CFX

Basic

- Fluent

Basic

- OpenFOAM



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Scientific production

Author or co-author of 20 papers published in indexed international journals and conference proceedings

Recent relevant publications:

- S. Smolentsev, T. Rhodes, Y. Yan, A. Tassone, C. Mistrangelo, L. Bühler, and F. Ugorri, “Code-to-Code Comparison for a PbLi Mixed-Convection MHD Flow,” *Fusion Science and Technology*, pp. 1–17, 2020. doi: 10.1080/15361055.2020.1751378
- A. Tassone, G. Caruso, and A. Del Nevo, “Influence of PbLi hydraulic path and integration layout on MHD pressure losses,” *Fusion Engineering and Design*, vol. 155, p. 111517, 2020. doi: 10.1016/j.fusengdes.2020.111517
- A. Tassone, G. Caruso, F. Giannetti, and A. Del Nevo, “MHD mixed convection flow in the WCLL: Heat transfer analysis and cooling system optimization,” *Fusion Engineering and Design*, vol. 146, pp. 809–813, 2019. doi: 10.1016/j.fusengdes.2019.01.087
- A. Tassone, M. Nobili, and G. Caruso, “Numerical study of the MHD flow around a bounded heating cylinder: Heat transfer and pressure drops,” *International Communications in Heat and Mass Transfer*, vol. 91, pp. 165–175, 2018. doi: 10.1016/j.icheatmasstransfer.2017.12.010
- A. Del Nevo, E. Martelli, P. Agostini, P. Arena, G. Bongiovì, G. Caruso, G. Di Gironimo, P. Di Maio, M. Eboli, R. Giammusso, *et al.*, “WCLL breeding blanket design and integration for 2015: status and perspectives,” *Fusion Engineering and Design*, vol. 124, pp. 682–686, 2017. doi: 10.1016/j.fusengdes.2017.03.020

Scopus database

278 citations by 154 documents (16/03/2021), h-index: 7

Grants and award

Start-up Research Grant, Sapienza University of Rome

- Investigation on mixed convective magnetohydrodynamic flows for fusion reactor blanket design, 2017
- Liquid metal MHD flows in water-cooled test blanket module for ITER, 2019

Medium-size Research Grant, Sapienza University of Rome

- Extreme magnetoconvection in shallow horizontally heated cavities: direct numerical simulation and preliminary test section design, 2020

Sapienza Excellent Laureate, Sapienza University of Rome

Research interests

Liquid metal magnetohydrodynamics (MHD), fusion blanket engineering, computational fluid dynamics (CFD), thermal-hydraulics, nuclear fusion reactors, GEN-IV fission reactors, sodium fast reactors (SFR), lead fast reactors (LFR), nuclear reactor design for space applications