PERSONAL INFORMATION

Riccardo De Luca

Industrial / Energy Engineer

Date of birth 30/04/1991

Riccardo has the perfect combination of theoretical and practical competences in industrial engineering that make him an excellent provider of tangible outcomes and brilliant solutions to address each sort of challenge. He relies on a sound background in energy engineering education and nuclear fusion together with technical experience in product management, material characterization and additive techniques.

WORK EXPERIENCE

Jul 2020 — EUROfusion Research Fellow

EUROfusion (Garching, Germany)

Power exhaust in future fusion reactors. Fabrication and testing of a sacrificial limiter to prevent the wall of the DEMO reactor from excessive damage during plasma transients. Newly-engineered lattices tailored fabricated by additive manufacturing and characterized. Hiring institutes: Max Planck Institute, Tuscia University, ENEA Frascati.

Apr 2017 – Dec 2017 — Internship: Associate Product Manager

GE Power Services (Baden, Switzerland) GmbH

Implementation of a Product Catalogue. Management of sales collaterals for an improved internal/external communication of the product portfolio. Establishment of a Total Plant Solution offering through the development of an interactive software solution to help Sales & Technical Offering generate customer-tailored solutions.

Oct 2016 – Mar 2017 — Energy Engineer

GIS Gestione Integrata di Servizi s.r.l. (Rome, Italy)

Energy performance certification of several hospitals and ASL in Rome. The challenging requirements of this project were fulfilled through on-site analyses for the identification of the main utilities and most influential energy drivers.

Mar 2016 – Sep 2016 — Internship: Visiting Researcher

Max-Planck Institute for Plasma Physics (Munich, Germany)

Visiting researcher involved in a collaboration between Max-Planck Institute for Plasma Physics and Fraunhofer. Thermo-physical and mechanical characterization of tungsten samples manufactured by means of additive manufacturing. Validation of Laser Beam Melting technique for nuclear fusion applications.

Oct 2013 – Feb 2016 — Part-time Assistant

University of Rome “Tor Vergata”, “Nucleo di Valutazione e Presidio Trasparenza - MIUR”

Role assigned to students having outstanding academic grade. Data analysis for “Ministero dell’Istruzione, dell’Università e della Ricerca” (MIUR). Support to national and European rankings assign academic funding.

EDUCATION and TRAINING

Dec 2017 – Feb 2021 — PhD in Engineering for Energy and Environment

University of Tuscia, DEIm Department (Italy)

Heat and particle exhaust in fusion reactors. Finite element aided design and testing of plasma facing components for nuclear fusion applications together with metallurgical and thermo-mechanical characterisation of advanced materials. Specific focus on first wall and divertor components for DTT and EU-DEMO reactors. Hosting institutes: ENEA Frascati and Max Planck Institute.

Oct 2016 – Dec 2017 **II Level Master in Fusion Energy, Science and Engineering**

University of Rome "Tor Vergata" (Italy)

Postgraduate education programme foreseen in the "Road Map to Fusion Electricity" of the European programme "Horizon 2020". It aims at preparing highly specialized personnel for industry by providing extensive knowledge on the operating principles and technologies of nuclear fusion reactors together with design of components and engineering aspects.

Sep 2014 – Oct 2016 **Master Degree in Energy Engineering**

University of Rome "Tor Vergata" (Italy)

Competences in hydraulic, thermal and electrical systems, industrial and environmental thermo-fluid dynamics. Physics phenomena of power generation and design of energy conversion systems are extensively covered, with focus on conventional, renewables and nuclear power plants. Additional competences: thermo-electric power plants, nuclear physics, renewables, mechanical design, industrial electronics, project and quality management, energy management and regulations, environmental impact, material science, metrology.

Jan 2016: **Six Sigma Academy Certificate in Quality Management**

Mar 2016 – Sep 2016: **Erasmus Semester at Technical University Munich (Germany)**

Thesis Title: Basic characterization of tungsten produced by means of Laser Beam Melting

Final Score: 110/110 with honors

Oct 2010 – Apr 2014 **Bachelor Degree in Energy Engineering**

University of Rome "Tor Vergata" (Italy)

Thesis Title: Cooling of convex surfaces impinged by air jet. Influence of the acoustic excitation on the heat exchange.

PERSONAL SKILLS

Languages: Italian (native), English (C1), German (B1), Spanish (A1)

Professional skills:
- Ability to work in heterogeneous teams as well as autonomously, problem solving, goal-oriented mindset, language property
- Project management capabilities
- Metallographic inspection, material characterization methods and additive techniques from laboratory experiences
- Proficient user of Microsoft Office (Excel, Word, PowerPoint, Publisher),
- Experienced user of ANSYS, MATLAB, AutoCAD, SolidWorks, CATIA, LabView, Java, Latek

Other skills and hobbies: Music: modern flute (certified), guitar, bass, piano. Team sports: volleyball, football. Travelling, reading

PUBLICATIONS and AWARDS

Oct 2016: A.v. Müller, R. de Luca et al., "*Microstructural investigations of tungsten manufactured by means of laser beam melting*", Proceedings of the VI International Conference on Additive Technologies iCAT2016, ISBN 978-961-285-537-6

Jan 2017: Seminar: "*Nuclear Fusion and Technologies for Nuclear Safety*", ENEA Frascati

Oct 2017: Award for "Master Thesis in Plasma Engineering and Controlled Thermonuclear Fusion", Consorzio RFX (Padua, Italy)

Feb 2019: DAAD scholarship for international academic cooperation

Mar 2019:
1. R. De Luca, et al. "*Preliminary investigation on W foams as protection strategy for advanced FW PFCs*", Proceedings of the SOFT2018 Conference, Fus. Eng. Des. 146B, DOI: 10.1016/j.fusengdes.2019.03.017 (poster prize)
2. F. Maviglia, R. De Luca, et al. "*Thermal-hydraulic analysis for first wall and thermal shield of Divertor Tokamak test facility*" Proceeding of the SOFT2018 conference, Fus. Eng. Des. 146B, DOI: 10.1016/j.fusengdes.2019.03.157

Jul 2019: Acknowledgement of the Major of Viterbo Giovanni Arena

Oct 2020:
1. R. De Luca, et al. "*Parametric design study of a substrate material for a DEMO sacrificial limiter*", Fus. Eng. Des.158 DOI: 10.1016/j.fusengdes.2020.111721
2. S. Roccella, G. Dose, R. de Luca et al. "*CPS Based Liquid Metal Divertor Target for EU-DEMO*", J. Fus. En. DOI: 10.1007/s10894-020-00263-4
3. A. v. Müller, M. Binder, G. Calabrò, R. De Luca, et al. "*Tailored tungsten lattice structures for plasma-facing components in magnetic confinement fusion devices*", Materials Today 39, 146-147, DOI: 10.1016/j.mattod.2020.08.015

2021: R. De Luca, et al. " *Comparison between finite element and experimental evidences of innovative W lattice materials for sacrificial limiter applications*", Proceedings of the SOFT2020 Conference, Fus. Eng. Des., in press