Matteo D'Onorio

europass

WORK EXPERIENCE

02/2020 – CURRENT – Rome, Italy

University research assistant

University of Rome La Sapienza, Dep. of Astronautic, Electric and Energy Engineering

Main education research topics:

- Severe accidents in nuclear facilities
- Plant Control and Monitoring Systems
- Modeling of multi-physics phenomena in nuclear reactors
- Sensitivity and Uncertainty quantification
- System codes virtual control

Rome, Italy

10/2016 – 28/02/2018

Data Analyst

ELIS

- **StorageLab** for **Terna S.p.A.**: Monitoring and managing the performance data of different storage technologies during both normal and critical operating conditions.
- **Quality of experience** for **Vodafone Italy:** Data management to creat e a correlation model between the quality of service and quality of experience; fine-tuning of the model with data extracted from customers; creation of a unique KPI to calculate customer satisfaction.

Rome, Italy

05/06/2017 – 16/06/2017

Visiting Lecturer

China-EU Institute for Clean and Renewable Energy at Huazhong University of Science & Technology, W

Course: "Energy conversion and grid control"

Wuhan, China

03/03/2015 – 01/09/2015

Research Intern

Commissariat à l'énergie atomique (CEA)

Research activity on reactor physics based on 1D and 2D subassembly modeling to estimate changes in multi-group microscopic cross sections following lattice deformation.

Cadarache, France

EDUCATION AND TRAINING

02/2020 – CURRENT – Boltzmannstr. 2, Garching, Germany

EUROfusion Engineering Grant

EUROfusion

Field(s) of study

- EU-DEMO nuclear safety analysis

https://www.euro-fusion.org/

11/2016 – 02/2020 – C.so Vittorio Emanuele II, 244, Rome, Italy

Ph.D. in Energy and Environment

University of Rome “La Sapienza”

Field(s) of study

- Nuclear Engineering

Safety Analyses with uncertainty quantification for fusion and fission nuclear power plants. Applications to EU DEMO fusion reactor and BWRs.

09/2013 – 05/2016 – Rome, Italy

Master of Nuclear and Energy Engineering

University La Sapienza

Risk analysis for industrial plants (6), Safety Systems of Nuclear Power Plants (6), Design of Nuclear Power Plants (9), Instrumentation and Control of Nuclear Power Plants (9), Radioprotection (9), Reactor Physics (9), Thermal Power Plants (6), Fluid-dynamics (6), Nuclear Physics (9), Plasma Physics (6), Electrical Motors and Generators (9), Electrical Networks (9)

Field(s) of study

- Nuclear Engineering

110/110 Cum laude | Analysis of lattice deformations impact on microscopic cross sections value and on core reactivity in a Sodium Fast Reactor. | 110/110 cum Laude

10/2010 – 07/2013 – Rome, Italy

Bachelor of Energy Engineering

University La Sapienza of Rome, Italy

Advanced Thermo-hydraulics (9), Elements of Safety for Energetic Engineering (6), Energetics and Heat Transfer (12), Elements of Nuclear Power Plants (6), Numerical Analysis (6), Energy Systems (9), Combustion Chemistry (6), Turbomachinery (9), Combined Cycles (9), Instrumentation and Control of Power Plants Power Plants (9), Electromagnetism (9), Structural Mechanics (9), Engineering Drawing (6), Geometry (9), Chemistry (9), Calculus (9), Multivariable Calculus and Differential Equations (9), Materials Science and Technology (9), Mechanics and Thermo-dynamics (9)

Passive Safety System in Nuclear Power Plants. The AP1000 Reactor. | 109/110

LANGUAGE SKILLS

MOTHER TONGUE(S): Italian

OTHER LANGUAGE(S):

English

Listening	Reading	Spoken production	Spoken interaction	Writing
B2	C1	C1	B2	C1

JOB-RELATED SKILLS

Job-related skills

Scientific skills:

- Mathematical and analytical skills
- Problem-solving
- Thermal-hydraulics
- Numeric Analysis
- Monte Carlo Analysis
- Nuclear Reactor Physics
- Safety and Risk Analysis
- Writing and editing publications and technical engineering reports

Informatic Skills:

- Advanced command of code for simulating nuclear-related and thermal hydraulics phenomena (MELCOR, RELAP, MCNP, ERANOS, SERPENT)
- Advanced command of mathematical and analytical software (MATLAB, RAVEN)
- Programming languages: Python, Fortran, Visual Basic for Applications
- Advanced command of Microsoft Office pack

PUBLICATIONS

D'Onorio, M., Giampaolo, A., Giannetti, F., Mascari, F., Caruso, G. "Severe accident sensitivity and uncertainty estimation using MELCOR and RAVEN", (2022) Journal of Physics: Conference Series, 2177 (1), art. no. 012021

2022 https://iopscience.iop.org/article/10.1088/1742-6596/2177/1/012021/meta

D'Onorio, M., Maggiacomo, A., Giannetti, F., Caruso, G. "Analysis of Fukushima Daiichi unit 4 spent fuel pool using MELCOR", (2022) Journal of Physics: Conference Series, 2177 (1), art. no. 012020

2022 https://iopscience.iop.org/article/10.1088/1742-6596/2177/1/012020/meta

Caruso, G., Ciattaglia, S., Colling, B., Pace, L.D., Dongiovanni, D.N., D'Onorio, M., Garcia, M., Jin, X.Z., Johnston, J., Leichtle, D., Pinna, T., Porfiri, M.T., Raskob, W., Taylor, N., Terranova, N., Vale, R., all contributors to the WPSAE, "DEMO – The main achievements of the Pre – Concept phase of the safety and environmental work package and the development of the GSSR", (2022) Fusion Engineering and Design, 176, art. no. 113025

2022 https://www.sciencedirect.com/science/article/pii/S0920379622000254

D'Onorio, M., Glingler, T., Giannetti, F., Caruso, G. "Dynamic Event Tree Analysis as a Tool for Risk Assessment in Nuclear Fusion Plants Using RAVEN and MELCOR", (2022) IEEE Transactions on Plasma Science

2022 https://ieeexplore.ieee.org/document/9760719

D'Onorio, M., D'Amico, S., Froio, A., Porfiri, M.T., Spagnuolo, G.A., Caruso, G., "Benchmark analysis of in-vacuum vessel LOCA scenarios for code-to-code comparison", (2021) Fusion Engineering and Design, 173, art. no. 112938

2021 https://www.sciencedirect.com/science/article/pii/S0920379621007146

Spagnuolo, G.A., Arredondo, R., Boccaccini, L.V., Chiovaro, P., Ciattaglia, S., Cismondi, F., Coleman, M., Cristescu, I., D'Amico, S., Day, C., Del Nevo, A., Di Maio, P.A., D'Onorio, M., Federici, G., Franza, F., Froio, A., Gliss, C., Hernández, F.A., Li Puma, A., Moreno, C., Moscato, I., Pereslavtsev, P., Porfiri, M.T., Rapisarda, D., Rieth, M., Santucci, A., Schwenzer, J.C., Stieglitz, R., Tosti, S., Urgorri, F.R., Utili, M., Vallone, E. "Integrated design of breeding blanket and ancillary sys

2021 https://www.sciencedirect.com/science/article/pii/S0920379621007092

D'Onorio, M., Dongiovanni, D.N., Ricapito, I., Vallory, J., Porfiri, M.T., Pinna, T., Caruso, G. "Supporting analysis for WCLL test blanket system safety", (2021) Fusion Engineering and Design, 173, art. no. 112902

2021 https://www.sciencedirect.com/science/article/pii/S0920379621006785

Celsi, L.R., Caliciotti, A., D'onorio, M., Scocchi, E., Sulieman, N.A., Villari, M. "On predicting ticket reopening for improving customer service in 5g fiber optic networks", (2021) Future Internet, 13 (10), art. no. 259

2021 https://www.mdpi.com/1999-5903/13/10/259

Dongiovanni, D.N., D'onorio, M.,"Loss of liquid lithium coolant in an accident in a dones test cell facility", (2021) Energies, 14 (20), art. no. 6569

2021 https://www.mdpi.com/1996-1073/14/20/6569

D'Onorio, M., Giampaolo, A., Caruso, G., Giannetti, F., "Preliminary uncertainty quantification of the core degradation models in predicting the Fukushima Daiichi unit 3 severe accident", (2021) Nuclear Engineering and Design, 382, art. no. 111383

2021 https://www.sciencedirect.com/science/article/pii/S0029549321003356

Mazzini, G., D'Onorio, M., Caruso, G. "Hydrogen explosion mitigation in DEMO vacuum vessel pressure suppression system using passive recombiners", (2021) Fusion Engineering and Design, 171, art. no. 112713

2021 https://www.sciencedirect.com/science/article/pii/S0920379621004890

D'Onorio, M., Caruso, G., "Pressure suppression system influence on vacuum vessel thermal-hydraulics and on source term mobilization during a multiple first Wall – Blanket pipe break", (2021) Fusion Engineering and Design, 164, art. no. 112224

2021 https://www.sciencedirect.com/science/article/pii/S0920379620307729

D'Onorio, M., Giannetti, F., Porfiri, M.T., Caruso, G. "Preliminary sensitivity analysis for an ex-vessel LOCA without plasma shutdown for the EU DEMO WCLL blanket concept", (2020) Fusion Engineering and Design, 158, art. no. 111745

2020 https://www.sciencedirect.com/science/article/pii/S0920379620302933

D'Onorio, M., Giannetti, F., Porfiri, M.T., Caruso, G. "Preliminary safety analysis of an in-vessel LOCA for the EU-DEMO WCLL blanket concept", (2020) Fusion Engineering and Design, 155, art. no. 111560

2020 https://www.sciencedirect.com/science/article/pii/S0920379620301083

D'Onorio, M., Giannetti, F., Caruso, G., Porfiri, M.T. "In-box LOCA accident analysis for the European DEMO water-cooled reactor", (2019) Fusion Engineering and Design, 146, pp. 732-735

2019 https://www.sciencedirect.com/science/article/pii/S0920379619300742

Burgio, N., Cretara, L., D'Onorio, M., Frullini, M., Gandini, A., Gatto, R., Santagata, A., "The Monte Carlo GPT methodology for the analysis of ratios of functionals bilinear with the real and adjoint neutron fluxes",(2017) Annals of Nuclear Energy, 106, pp. 154-159

2017 https://www.sciencedirect.com/science/article/pii/S0306454916311525

TECHNICAL REPORTS

Technical reports

- M. D'Onorio, G.Mazzini, G. Cauruso, "On solutions to minimize invessel hydrogen and dust explosion risk", EUROfusion WPSAE-2.024-T001 -D005&D006:
- M. D'Onorio, G. Cauruso, T. Pinna, Report on FMEA at component level of the DIV and VV PHTSs, WPSAE-2.016.6-T003-D003:
- M. D'Onorio, G. Cauruso, "Loss of Heat Sink (LoHS) accident analysis for the WCLL concept", WPSAE-2.022.1-T001-D029
- M. D'Onorio, G.Mazzini, G. Cauruso, "Propose and study solutions to minimize in-vessel hydrogen and dust explosions", Internal Deliverable SAE-2.024.1-T001-D007 & D008:
- G. Caruso, M. D'Onorio, "Beyond Design Basis accident analysis affecting BZ cooling loop in WCLL DEMO", EUROfusio WPSAE-2.023.1-T001-D014;
- G. Caruso, M. D'Onorio, "Final report on selected accident analyses 2019 by UNIROMA", EUROfusion WPSAE-2.022.1-T001-D024;
- G. Caruso, M. D'Onorio, "Development of the TBM and Ancillary systems models", WPSAE-5.2.1-T001-D003;
- G. Caruso, M. D'Onorio, "GSSR Vol. 8: Analysis of beyond design basis events", WPSAE-4.4.3-T001-D001-D002
- M. D'Onorio, G. Caruso, "Interim report on accident analyses to support the design of the VVPSS", EUROfusion WPSAE-2.023.1-T001-D07-2;
- M. D'Onorio, G. Caruso, "Hydrogen and dust explosion mitigation" EUROfusion WPSAE-2.024.1-T01-D03-D04;
- M. D'Onorio, G. Caruso, "LOFA BDBA scenario analyses in WCLL blanket" EUROfusion WSAE-2.022.1-T001-D019-4
- M. D'Onorio, G.Caruso, "Interim report on selected accident analyses on WCLL" EUROfusion WPSAE-2.022.1-T001-D019-3
- M. D'Onorio, G. Caruso, F. Giannetti, "Interim report on accident analyses: Loss of coolant in FW and BB cooling loops",EUROfusion WPSAE-2.22.1-T001-D013;
- M. D'Onorio, G. Caruso, F. Giannetti, M. Frullini. "Interim report on accident analyses: WCLL blanket in-box LOCA", EUROfusion WPSAE-2.22.1- T01-D07;
- F. Mascari, M. D'Onorio, F. Giannetti, G. Caruso, A. Naviglio. "Analisi di transitori non mitigati: perdita di refrigerante da piccola rottura in PWR, perdita d'acqua di alimento del GV in PWR e SBO in BWR", ADPFISS-LP1-103;
- Maria Teresa Porfiri, Guido Mazzini, Matteo D'Onorio, Fabio Giannetti, G. Caruso. "Solutions to minimize in-vessel hydrogen and hydrogen/dust explosions: proposal and study", EUROfusion WPSAE – 2.24.1 D01-T01;
- M. Nobili, G. Caruso, F. Giannetti, M. D'Onorio. "Interim report on parametric accident analyses: LOFA in WCLL blanket", EUROfusion WPSAE-2.23.1-T01-D01