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Andrea Burlando

ABOUT ME

Ph.D. Student at University of Genoa developing his work in Ansaldo Energia as R&D Engineer.

WORK EXPERIENCE

Ph.D. Internship Student - R&D Engineer

Ansaldo Energia [Nov 2021 – Current]

The Internship focuses on the development of the concept design of EU DEMO (DEMOnstration Power Plant) Balance of Plant options. Specifically, the resource has been integrated, in Ansaldo Energia R&D group to support EUROfusion industrial task on BoP options design.
Research areas include:

- Power Conversion System (PCS) architecture definition, with regards to the Water Cooled Lithium Lead Breading Blanket DEMO. For all the BoP options considered (i.e. i) a PCS thermally connected to the Primary Heat transport system (PHTS) with a Small Energy Storage, ii) a PCS thermally connected to PHTS without any energy storage and iii) a PCS connected to PHTS thanks to an intermediate heat transfer loop with storage system), the aim is to develop the most suitable concept able to accommodate the plasma pulsation.
- Assessment of PCS options heat balances in DEMO operational period (i.e. Pulse/Dwell) and thermal cycle analysis
- Development of Process & Instrumentation Diagram (P&ID) of the PCS variants
- Preliminary PCS components selection and sizing (i.e. heat exchanges, pumps, valves, steam turbines)
- Performance evaluation and optimization (i.e. electrical power assessment, power cycle efficiency)
- PCS control strategy development, regulation loops definition and transient analysis

Visiting Research Fellow

Centrum výzkumu Řež / Research Centre Řež [Apr 2024 – Jul 2024]

City: Prague | **Country:** Czechia

Visiting period as researcher as support on the ongoing CVR projects, focusing on:

- development of supercritical CO_2 cycle heat balance part of a CVR proposal
- sizing and optimization of a natural circulation steam drum relative to a CVR facility

EDUCATION AND TRAINING

Ph.D. Student - Engineering of Models, Machine and System for Energy, Environment and Transport

University of Genoa - TPG Group [Nov 2021 – Current]

City: Genova | **Country:** Italy

Curriculum: Engineering of machines and systems for energy, the environment and propulsion.
Research focused on the Energy Conversion Systems with particular interest to Nuclear Fusion.

Master Degree - Mechanical Engineering - Energy and Aeronautics

University of Genoa [2016 – 2021]

City: Genova | **Country:** Italy

Curriculum: Machine and Energy System.
MS course intended to the development of the main expertise in the energy conversion field, based both on renewable and traditional sources and its main components design.

Thesis developed in the field of SOLARSCO2OL EU project; Title: *Off-design and dynamic analysis of a supercritical CO_2 power plant for CSP solar application*

Erasmus Exchange Program

Universidad de Zaragoza [2017 – 2018]

City: Saragozza | **Country:** Spain

University Exchange Program for the achievement of curricular exams, during the first semester of Master Degree in the Polytechnic School of the University of Zaragoza in Spain.

Bachelor Degree - Mechanical Engineering

University of Genoa [2011 – 2017]

City: Genova | **Country:** Italy

BS course aimed to the basic mechanical engineering problem solving. The main purpose is learning the design expertise in industrial machine and process development and production.

Thesis Title: *Experimental analysis with hybrid system emulation plant: microturbine connected with different volume sizes*

LANGUAGE SKILLS

Mother tongue(s): Italian

Other language(s):

English

LISTENING C1 **READING** C1 **WRITING** B2

SPOKEN PRODUCTION B2 **SPOKEN INTERACTION** C1

Spanish

LISTENING C1 **READING** C1 **WRITING** B2

SPOKEN PRODUCTION B2 **SPOKEN INTERACTION** B2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

DIGITAL SKILLS

EBSILONProfessional / Matlab and Simlunk / AutoCAD / Microsoft Excel / C# C++ Basic Knowledge / Microsoft Office / MicroStation CAD / Engineering Equation Solver (EES)

PUBLICATIONS

[2023]

Design of the secondary circuit for the WCLL BB option of the EU DEMO power plant based on the new Energy Map

Malinowski L. et al., Fusion Engineering and Design vol. 191

[2024]

Analysis and optimization of the secondary circuit for the option WCLL BB direct coupling with small ESS of the EU DEMO power

Malinowski L. et al., Fusion Engineering and Design, vol. 199

[2024]

The new layout and regulation of the "pulsating" power conversion system of EU DEMO WCLL for an effective and safe control of pulse-dwell transition and increase of plant efficiency To be Issued on Nuclear Fusion

Barucca L. et al., Presented at Fusion Energy Conference 2023.