SOFIA VIARENGO

Energy Engineer

Italian
Torino
+39 3279704372
sofia.viarengo@polito.it
Linkedin Profile
Google Scholar Profile

Curious, hard-working and result oriented, eager to face new challenges.
Driven by a passion for discovery and for finding efficient and cost-effective solutions to problems that need to be addressed.

SKILLS

HARD

- Microsoft Office
- Comsol Multiphysic
- Solidworks
- Matlab
- Python
- Freefem C++
- Comsol Multiphysic
- Star CCM+

LANGUAGES

- Italian (mothertongue)
- English (Professional)

SOFT

- Networking
- Adaptability
- Leadership
- Decision-making
- Empathy
- Troubleshooting attitude
- Public speaking
- Good interaction in a team

EDUCATION

April. 2024 - on going
Frascati (RM), Italy

VISITING RESEARCH FELLOWHIP
Activity: design and manufacturing of a HTS 1.5 T solenoid.
ENEA Frascati Reseach Center

Nov. 2020 - On going
Turin, Italy

PHD IN ENERGETICS
Activity: Development of numerical multiphysics (electromagnetic and thermalmodels for the analysis of normal and off-normal operating conditions for HTS components for fusion, accelerator and power transmission applications.
DENERG, Dipartimento Energia "Galileo Ferraris", Politecnico di Torino

Jan. 2022 - Oct. 2022
Berkeley, US (CA)

VISITING RESEARCH SCHOLARSHIP
Activity: development of a 3D multi-physics numerical model for the characterization of the critical current of the REBCO CORC cable for particle accelerators applications.
ATAP Division, Lawrence Berkeley National Laboratory

March 2020 - Nov. 2020
Turin, Italy

RESEARCH FELLOWSHIP
Activity: advanced thermal and electric modeling of superconductors
DENERG, Dipartimento Energia "Galileo Ferraris", Politecnico di Torino

2017 - March 2020
Turin, Italy

MASTER DEGREE: **ENERGY AND NUCLEAR ENGINEERING**
Thesis: “Reduction of the parasitic heat load to the Toroidal Field magnets in the future European DEMO fusion machine”
Politecnico di Torino

2014 - 2017
Rome, Italy

BACHELOR DEGREE: **ENERGY ENGINEERING**
Thesis: “TRIGA reactor fuel: characteristics, features and intrinsic safety”
La Sapienza Università di Roma

2009 - 2014
Bracciano (RM), Italy

HIGH SCHOOL: **SCIENCE**
Liceo scientifico "Ignazio Vian"

WORK EXPERIENCES

April - May 2024
April 2022
Turin, Italy

TEACHING ASSISTANT
Nuclear Engineering Lab and Advanced Heat Transfer
Master in Energy and Nuclear Engineering, Politecnico di Torino

Oct. 2023 - Nov. 2023
Oct. 2022 - Nov. 2022
Oct. 2021 - Nov. 2021
Oct. 2020 - Nov. 2020
Turin, Italy

TEACHING ASSISTANT
Laboratory of computational heat transfer
Bachelor in Energy Engineering, Politecnico di Torino

Nov. 2019-Dec. 2019
Turin, Italy

RESEARCH FELLOW
- Application of PDE Toolbox in MatLab
- Construction of mesh in Gmsh
- Application of PDE Toolbox in MatLab merging Gmsh
- Thermal simulation in Star CCM+

DENERG, Politecnico di Torino

Jul. 2017 - Sep. 2017
Rome, Italy

RESEARCH FELLOW
- In-depth study of TRIGA fission reactor and its fuel
- Redaction of thesis work

ENEA, Research Center Casaccia

ORGANIZATION OF CONFERENCES

- Students Events for Applied Superconductivity Conference 2024, Salt Lake City, US (UT)
- Outreach event for High Schools and University in Physics and Engineering in Superconductivity for EUropean Conference on Applied Superconductivity 2023, Bologna (Italy).
- Outreach event for High Schools and University in Physics and Engineering in Superconductivity for Applied Superconductivity Conference 2022, Honolulu, US (HI)

MEMBERSHIPS

- European Society of Applied Superconductivity (ESAS) Early Carrier Board Team
- Applied Superconductivity Educational Foundation (ASEF)
- Student Member IEEE Advancing Technology for Humanity
- IEEE Young Professionals
- Cost Action WG2: European Cooperation in Science and Technology, Working Group "Improved modelling and advanced computation"

AWARDS

- RECOGNITION OF AN **OUTSTANDING STUDENT CONTRIBUTION** TO THE FIELD OF MAGNET TECHNOLOGY
  Poster title: "CORC® cables: numerical characterization of the critical current after bending process", presented at MT-28 Conference, September 2023
- IEEE CSC 2023 GRADUATE FELLOWSHIP
  June 2023
- PARTICIPATION AT II HI-SCALE TRAINING SCHOOL:
  Cost Action Training School on High temperature Superconductors Application, Fethiye (Turkiye), April 2023
- PARTICIPATION AT US PARTICLE ACCELERATORS SCHOOL (USPAS):
  University of Michigan, Chicago, US (MI), June 2022

INTERESTS

- Dancing, Music (piano), Reading novels
- Travelling and hiking
- Outreach events

PUBLICATIONS

"Analysis framework for nuclear heating effects on HTS-based conductors in fusion power plants"

Sparacio S., Viarengo S., Ledda F., Torsello D., Riva N., Hartwig Z.S., Savoldi L., Laviano F., (2024),IEEE Transactions on Superconductivity.

"CORC® Cables: Numerical Characterization of the Critical Current After Bending"

Viarengo, S.; Freschi, Savoldi, L.; (2024),IEEE Transactions on Superconductivity.

"A new coupled electrodynamic T− A and thermal model for the critical current characterization of high-temperature superconducting tapes and cables"

Viarengo, S.; Brouwer, L.; Ferracin, P.; Freschi, F.; Riva, N.; Savoldi, L.; Wang, X.. (2023),IEEE Access.

"Nonlinear Magneto-quasistatic Simulation of Superconducting Tapes with a – ψ Algebraic Formulation"

Freschi, F.; Savoldi, L.; Viarengo, S., (2023), IEEE Transactions on Magnetic.

"BELFEM: A special purpose finite element code for the magnetodynamic modeling of high-temperature superconducting tapes"

Messe C.; Riva, N.; Viarengo, S.; Giard, G.; Sirois, F., (2023), Superconductor Science and Technology.

"Current distribution modeling in the open-source OPENSC2 tool for the multi-physics analysis of HTS and LTS cables"

Viarengo, S.; Freschi, F.; Placido, D.; Savoldi, L. (2022), IEEE Transactions on applied superconductivity.

"Thermal-hydraulic models for the cooling of HTS power-transmission cables: status and needs"

Savoldi, L.; Placido, D.; Viarengo, S. (2022), Superconductor Science and Technology.

"Thermal-hydraulic analysis of superconducting cables for energy applications with a novel open object-oriented software: OPENSC2"

Savoldi, L.; Placido, D.; Viarengo, S. (2022), Cryogenics.

"DTT: A Challenging Framework for a Sound Superconducting Magnets Design"

Di Zenobio, A.; et. al (2022), IEEE Transactions on applied superconductivity.

"Evaluation of the thermal perfomance of the SC feeders for the magnetic system of the divertor tokamak test facility"

Placido D..; et. al (2022), IEEE Transactions on applied superconductivity.

"Design of a module for a 10 MJ toroidal YBCO Superconducting Magnetic Energy Storage"

Sparacio, S.; Napolitano, A.; Savoldi, L.; Viarengo, S.; Laviano, F. (2022), IEEE Transactions on applied superconductivity.

"Analysis of the effects of thermal anchors on the reduction of the parasitic load to the EU-DEMO TF Coils"

Viarengo, S.; Allio, A.; Boso, D. P.; Savoldi, L.; Sedlak, K.; Corato, V. (2021), Fusion engineering and design.