



DR. MARCO BARBISAN

RESEARCHER

OBJECTIVE

Spectroscopic characterization of plasmas for thermonuclear fusion devices.

Study and optimization of negative ion sources and neutral beam injectors for fusion reactors.

SKILLS & ABILITIES

Emission and laser absorption spectroscopy techniques in the visible and NIR range.

Widespread competence on H^+/D^- ICP ion source related technologies.

VITALS

Consorzio RFX

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RESEARCH ACTIVITIES

I'm committed in the development, study and optimization of the Neutral Beam Injectors (NBIs) for the ITER experiment. I'm in particular involved in the experimentation on the SPIDER experiment, i.e. the prototype of the negative ion source for ITER NBIs. SPIDER is part of the Neutral beam Test Facility at Consorzio RFX, Padua. In addition, I lead the experimentation on the small negative ion source NIO1 within the long term research field aimed at the realization of the first demonstrative DEMO reactor.

Besides the experimentation on the general physics of negative ion source, I'm specialized in characterizing the ion source performances by means of Optical Emission, Tunable Diode Absorption and Cavity Ring Down Spectroscopy techniques, while I study the produced negative ion beam by means of Beam Emission Spectroscopy.

INTERNATIONAL COLLABORATIONS

- Max Planck Institut für Plasmaphysik (IPP, Garching).
- Ecole Polytechnique Fédérale de Lausanne (EPFL).
- National Institutes for Quantum and Radiological Science and Technology (QST, Naka, JP).
- National Institute for Fusion Science (NIFS, Toki, JP).

EDUCATION

Master's degree in Physics at Università degli Studi di Padova (2011). Joint European Doctorate in Fusion Science and Engineering (Università degli Studi di Padova, Instituto Superior Técnico Lisboa, 2015). PhD thesis: Beam Emission Spectroscopy studies in a H^+/D^- beam injector.

TUTORING

I supervised the training internship of a student from the Technische Universiteit Eindhoven and the bachelor thesis activities of two students from Università degli Studi di Padova.

PUBLICATIONS & CONFERENCES

I'm the first author of 11 publications and co-author of 51 publications. My work was cited in 658 publications. My H-index is 15 (Sept. 2020).

Scholar profile: <https://scholar.google.com/citations?user=qTo8NaIAAAAJ>

I presented my work at

- International Conference on Ion Sources (ICIS)
- High Temperature Plasma Diagnostics (HTPD) conference
- International Symposium on Negative Ions, Beams and Sources (NIBS)
- Symposium on Fusion Technology (SOFT)
- Laser Aided Plasma Diagnostics Symposium (LAPD)