

CV of the Candidate

Michele Fadone

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WORK EXPERIENCE

From February 2020

Awarded the EuroFusion Grant within the Heating and Current Drive System, specifically for the development of an enhanced vacuum system for the ITER Neutral Beam Source, SPIDER.

Activities performed as researcher at Consorzio RFX.

October 2019-January 2020 (co.co.co with Consorzio RFX)

Finalization of the activities performed during the PhD activity

October 2016-September 2019

The research activity performed during the PhD period has been coordinated within the 'Plasma Engineering Group' of Consorzio RFX, and focused on the Enabling Research Research ENR-MFE17.ENEА-06:

- Design of the vacuum system for an alternative negative ion source:
 - Simulations of the expected pressure in the chamber area where the source was going to operate with the available pumping system
 - Definition of the layout of the vacuum chamber structure, considering flexibility for diagnostic systems to be added further on
- Design, development and operation of a Hall-Effect Thruster for Hydrogen negative ion study:
 - Numerical electro-magnetic simulations with a conceptual design proposed
 - Thermal and mechanical simulations
 - H2 operation safety calculations
 - Design and construction of diagnostics and extraction systems
 - Particle Tracing with COMSOL
- Design of Negative Ion extractors at SPC (EPFL) in Lausanne (6 months):
 - Improved knowledge on Helicon Antennas plasmas and operations
 - Numerical Electro-Magnetic simulations
 - Thermal Analyses
 - Particle Tracing

EDUCATION

31 March 2020 PhD exam: passed

2016-2019 PhD Student of the University of Padua at Consorzio RFX

- PhD in Fusion Science and Engineering
- Topic: Design of alternative negative ion sources for plasma heating
- Designed, developed and operated a new concept of Hall Effect Thruster
- Designed 2 Hydrogen negative ions extractor prototypes for RAID experiment at SPC (EPFL) in Lausanne

PhD courses

- Advanced Diagnostic and Data Acquisition (University of Padova, Padova, 2017)
- Advanced Plasma Physics Course (IPP Max-Planck Institute for Plasma Physics, Garching, 2017)

- Advanced Engineering of Fusion Technology (University of Padova, Padova, 2018)

2013–2016 University of Padua, MSc Aerospace Engineering (110/110)

- Erasmus experience in Eindhoven at the TU/e for 6 months (August 2015-January2016)
- MSc thesis in Erasmus: Electromagnetic full-wave analysis of radio-frequency antennas for magnetized plasma sources

Academic courses

- Manufacturing technology of aerospace materials (28/30)
- Mechanical vibrations (27/30)
- Astrodynamics (28/30)
- Aerospace propulsion (26/30)
- Mechanical and thermal measurement systems (30/30)
- Aerospace systems 2 (29/30)
- Thermal control of aerospace vehicles (30/30)
- Design of aerospace structures 2 (25/30)
- Aerospace instrumentation (30/30)
- Space robotics (30/30)
- Machines and compressors (26/30)
- Space optics and instrumentation (30/30)
- Composites materials science and technology (27/30)
- Aerospace propulsion laboratory (28/30)
- University of Padua, Aerospace Engineering (105/110)

IT SKILLS

- Proficient with Matlab software
- Competent with Microsoft Office programmes and Adobe Suite Packet
- ECDL (European Computer Driving Licence) certificate
- Experience with CAD software (CATIA, SolidWorks, Autocad)
- Experience with Python, C++, Fortran

LANGUAGES

- Italian: Native speaker
- English: level C1 (Cambridge English:Advance, 2014)

LIST OF PUBLICATIONS

- Antoni V., Taccogna F., Fadone M., Chitarin G., Fassina A., Serianni G., Sartori E., Veltri P., Cavenago M., Minelli P., Alternative concept of an efficient negative ion source for neutral beams, AIP Conference Proceedings, V. 2011, (2018) 060013
- Chitarin G., Serianni G., Toigo V., Bigi M., Boldrin M., Bello S. D., Grando L., Luchetta A., Marcuzzi D., Pasqualotto R., Pomaro N., Zaccaria P., Zanotto L., Agostinetti P., Agostini M., Antoni V., Aprile D., Barbisan M., Battistella M., Brombin M., Cavazzana R., Palma M. D., Dan M., De Lorenzi A., Delogu R., De Muri M., Denizeau S., Fadone M., Fellin F., Ferbel L., Ferro A., Gaio E., Gambetta G., Gasparini, F., Gnesotto F., Jain P., Maistrello A., Manduchi G., Manfrin S., Marchiori G., Marconato N., Moresco M., Patton T., Pavei M., Peruzzo

- S., Pilan N., Pimazzoni A., Piovan R., Poggi C., Recchia M., Rizzolo A., Start of SPIDER operation towards ITER neutral beams, AIP Conference Proceedings, V. 2052, (2018), 030001
- Sartori E., Barbisan M., Fadone M., Gorno S., Bizzotto L., Veltri P., Laterza B., Ghiraldelli R., Rizzolo A., Pasqualotto R., Serianni G., Diagnostics of caesium emission from SPIDER caesium oven prototype, AIP Conference Proceedings, V. 2052, (2018), 040011
 - Fadone M., Antoni V., Aprile D., Chitarin G., Fassina A., Martines E., Serianni G., Sartori E., Taccogna F., Zuin M., Plasma characterization of a Hall effect thruster for a negative ion source concept, AIP Conference Proceedings, V. 2052, (2018), 020009
 - Sartori E., Gorno S., Fadone M., Serianni G., Analytical study of caesium-wall interaction parameters within a hydrogen plasma, AIP Conference Proceedings, V. 2052, (2018), 020006
 - Serianni G., Toigo V., Bigi M., Boldrin M., Chitarin G., Dal Bello S., Grando L., Luchetta A., Marcuzzi D., Pasqualotto R., Pomaro N., Zaccaria P., Zanotto L., Agostinetti P., Agostini M., Antoni V., Aprile D., Barbisan M., Battistella M., Brombin M., Cavazzana R., Dalla Palma M., Dan M., De Lorenzi A., Delogu R., De Muri M., Denizeau S., Fadone M., Fellin F., Ferbel L., Ferro A., Gaio E., Gambetta G., Gasparini F., Gnesotto F., Jain P., Maistrello A., Manduchi G., Manfrin S., Marchiori G., Marconato N., Moresco M., Patton T., Pavei M., Peruzzo S., Pilan N., Pimazzoni A., Piovan R., Poggi C., Recchia M., Rizzolo A., Rostagni G., Sartori E., Siragusa M., Sonato P., Spada E., Spagnolo S., Spolaore M., Taliercio C., Tinti P., Ugoletti M., Valente M., Zamengo A., Zaniol B., Zaupa M., Baltador C., Cavenago M., Boilson D., Rotti C., Veltri P., Bonicelli T., Paolucci F., Muriel S., Masiello A., Chakraborty A., Patel H., Singh N.P., Fantz U., Heinemann B., Kraus W., Kashiwagi M., Tsumori K., SPIDER in the roadmap of the ITER neutral beams, Fusion Engineering and Design, 2019 (article in press)
 - Rizzolo A., Barbisan M., Bizzotto L., Capobianco R., De Muri M., Fadone M., Ghiraldelli R., Gorno S., Laterza B., Marchiori G., Marcuzzi D., Migliorato L., Molon F., Ravarotto D., Rizzieri R., Rossetto F., Sartori E., Serianni G., Veltri P., Characterization of the SPIDER Cs oven prototype in the CAesium Test Stand for the ITER HNB negative ion sources, Fusion Engineering and Design, V. 146, (2019), P. 676-67