Curriculum vitae for Francesco Volpe

Assistant Professor of Engineering Physics at the University of Wisconsin, Madison

Education

2003 Ph.D. in Exp.Physics, Ernst Moritz Arndt Universität Greifswald (Germany), *Summa cum Laude*

1998 "Laurea" (M.Sc.) in Physics, University of Pisa (Italy), *110 out of 110 points, cum Laude*

Employment

2009 -date	*Assistant Professor*	Engineering Physics Dept, University of Wisconsin, Madison, U.S.A.
2008	*Staff Physicist*	Max-Planck-Institut für Plasmaphysik (IPP), Garching, Germany
2006 -08	*Visitor/Post-doc*	General Atomics, San Diego, U.S.A.
2006	*Adv. Training Scholar*	Max-Planck-Institut für Plasmaphysik (IPP), Greifswald, Germany
2004 -05	*Physicist*, Fircroft	UKAEA Fusion, Culham, U.K.
2002 -04	*Post-doc*	UKAEA Fusion, Culham, U.K.
1998 -02	*PhD student*	Max-Planck-Institut für Plasmaphysik (IPP), Garching, Germany
1998	*Borsista (Scholar)*	Consorzio di Magnetofluidodinamica, University of Trieste, Italy
1997 -98	*Undergraduate student*	ENEA Laboratory for Energy Research, Frascati, Italy

Honors, fellowships and awards

2010 Marquis Who's who in Science and Engineering 2011-12

2007 Oak Ridge Associated Universities (ORAU) Fellowship

2003 Otto-Hahn Medal of the Max-Planck Gesellschaft (MPG)

2002 Marie Curie Individual Fellowship, European Commission

Research

Plasma Physics and Magnetic Confinement Fusion (Tokamaks and Stellarators) both experimentally and via numerical modelling, with emphasis on:

- Microwave Heating, Current Drive and Diagnostics
- Magnetohydrodynamic Instabilities and their Control

List of publication available at `http://silver.neep.wisc.edu/~volpe/Publ/lPub.pdf`:

- 5 invited talks at international conferences
- 34 refereed publications
- 76 papers in conference proceedings and other publications

Main accomplishments:

- first Electron Bernstein Wave (EBW) emission diagnostic of electron temperature profiles, i.e. first extension of Electron Cyclotron Emission (ECE) to overdense plasmas
- first heat waves generated by EBW heating and measured by EBW emission
- first ray tracing code including mode conversions and 3D stellarator geometry
- with H.P. Laqua *et al.*: first EBW current drive by Ordinary-eXtraordinay-Bernstein mode conversion
- first diagnostic (spinning mirror) for rapid angular scans of EBW emission
- international collaboration on optimization of ITER upper launchers for Electron Cyclotron Current Drive (ECCD) stabilization of Neoclassical Tearing Modes (NTMs)
- first stabilization of NTM by ECCD modulated and radially aligned by means of oblique ECE
- first stabilization, by ECCD and magnetic perturbations, of a locked mode that would otherwise have caused a disruption

Teaching and mentoring

- **Teaching/Taught** "Introduction to Plasmas" and "Nuclear Instrumentation Laboratory".
- **Lectured** on "Plasma Waves and Heating" at the IPP Summer University on Plasma Physics and Fusion Research 2008, Garching (Germany).
- **Current students**: 2 graduate and 2 undergraduates at the University of Wisconsin, Madison.
- **Previous students**: 4 graduate and 2 undergraduates at the University of Wisconsin, Madison (2009-10), 2 undergraduates at General Atomics (2007-09) and 4 undergraduates at IPP Garching, Germany (2000-01).

Service

- Regular **referee** for *Nucl. Fusion* and for *Plasma Phys. Control. Fusion.* Occasional referee for other 6 journals and for the Czech Science Foundation.
- **Conference** organization: 15th Workshop on MHD Stability Control, Madison, WI, Nov.15-17 2010
- **Outreach**: Judge in Science Fairs (Wisconsin, 2010-11), "Scientist in the Classroom" (California, 2006-07), guide to the MAST and COMPASS tokamaks (Culham, U.K., 2004-05).

Selected Publications

- **F. Volpe**
  A Spinning Mirror for Fast Angular Scans of EBW Emission for Magnetic Pitch Profile Measurements
  Rev. Sci. Instrum., **81**, 10D905 (2010)
- **F. Volpe**
  Analytical Solution of the O-X Mode Conversion Problem
  Phys. Lett. A, **374**, 1737 (2010)
- **F.A.G. Volpe**, M.E. Austin, R.J. La Haye, J. Lohr, R. Prater, E.J. Strait and A.S. Welander
  Advanced techniques for neoclassical tearing mode control in DIII-D
  Phys. Plasmas **16**, 102502 (2009)
- **F.Volpe**
  Weakly relativistic dielectric tensor for arbitrary wavenumbers
  Phys. Plasmas **14**, 122105 (2007)
- A.Mueck, L.Curchod, Y.Camenen, S.Coda, T.P.Goodman, H.P.Laqua, A.Pochelon, L.Porte, **F.Volpe**, TCV Team
  Demonstration of Electron Bernstein Wave Heating in a Tokamak via O-X-B Double Mode Conversion
  Phys. Rev. Lett., **98**, 175004 (2007)
- **F.Volpe**
  Sensitivity of ITER ECRH Upper Launcher to Steering Errors and Changes of Profiles and Integration with Equatorial Launcher
  Journal of Phys.: Conf.Series **25**, 283 (2005)
- H.P.Laqua, H.Maassberg, N.Marushchenko, **F.Volpe**, A.Weller, W7-AS Team, W.Kasparek and ECRH-Group
  Electron-Bernstein-Wave Current Drive in an Overdense Plasma at the Wendelstein 7-AS Stellarator
  Phys. Rev. Lett. **90**, 75003 (2003)
- **F.Volpe**, H.P.Laqua and the W7-AS Team
  BXO mode-converted electron Bernstein emission diagnostic (invited)
  Rev. Sci. Instrum. **74**, 1409 (2003)

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