

# Nicola Vianello

curriculum vitae

## Home

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Italy

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## Work

c/o Swiss Plasma  
Center  
Ecole Polytechnique  
Federale de Lausanne  
CH 1025 Lausanne  
Switzerland

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## interests

Plasma physics, Fusion Energy, Turbulence, Non-linear dynamics, Astrophysical plasmas, dynamics in social system

## Education and Qualifications

- 1994 **High School, 56 out 60** Liceo Scientifico U.Morin, Venezia
- 1994-1999 **Laurea in Fisica, M.Sc. in Physics magna cum Laude** Università degli Studi di Padova  
Thesis title: *Trasporto di particelle ed energia per effetto di turbolenza elettrostatica in plasmì confinati in configurazione Reversed Field Pinch*  
Topics: Electrostatic anomalous transport. Sheared Flows. Active modification of boundary flow through edge biasing
- 2000-2002 **Ph.D in Energetics** Università degli Studi di Padova  
Thesis title: *Self-organization phenomena and coherent structure generation in magnetized plasmas*  
Topics: Electromagnetic turbulence in Reversed Field Pinches and Tokamaks. Anomalous transport. Self Organized Criticality

## Further Education

- Oct 2000 **International School of Plasma Physics and Ultrafast Optics** Capri, Italy
- Sept 2001 **5<sup>th</sup> Carolus Magnus Euro-Summer School on Plasma and Fusion Energy Physics** Badhonnef, Germany
- Jan 2002 **International School on Topics in Nonlinear Dynamics** Venice, Italy
- Jun 2011 **5<sup>th</sup> International ITER Summer School on MHD and energetic particles** Aix-en-Provence, France

## Employment

- 03-10 1999 **Consorzio RFX** Padova, Italy  
Research Fellow
- 11-2002  
04-2003 **Consorzio RFX** Padova, Italy  
Research Fellow
- 05-2003  
12-2005 **Consorzio RFX** Padova, Italy  
Research Scientist
- 01-2006  
07-2009 **Consorzio RFX** Padova, Italy  
Research Scientist, Permanent staff

Last update: October 20, 2015

07-2009		
02-2015	<b>Consiglio nazionale delle Ricerche</b> <b>c/o Consorzio RFX</b> Research Scientist, permanent staff, presently on leave	Padova, Italy
03-2012		
Date	<b>Ecole Polytechnique Federale de Lausanne,</b> <b>Centre de Recherches in Physique des Plasmas</b> Research Scientist	Lausanne, Switzerland

## Further experiences

03-06 2001	<b>Visiting Scientist</b> under EURATOM-Mobility Staff Movement	Royal Institute of Technology Stockholm, Sweden
05-06 2002	<b>Visiting Scientist</b> under EURATOM-Mobility Staff Movement	Royal Institute of Technology Stockholm, Sweden
03-04 2003	<b>Visiting Scientist</b> under EURATOM-Mobility Staff Movement	Royal Institute of Technology Stockholm, Sweden
04-06 2004	<b>Visiting Scientist</b> under EURATOM-Mobility Staff Movement	Royal Institute of Technology Stockholm, Sweden
10-11 2005	<b>Visiting Scientist</b> under EURATOM-Mobility Staff Movement	Risø National Laboratory, Risø Denmark
02 2008	<b>Visiting Scientist</b> under EURATOM-Mobility Staff Movement	Max Plank Institut für Plasma Physik, Garching Germany
05 2009	<b>Visiting Scientist</b> under EURATOM-Mobility Staff Movement	Max Plank Institut für Plasma Physik, Garching Germany
11 2009	<b>Visiting Scientist</b> under EURATOM-Mobility Staff Movement	CRPP, EPFL, Lausanne Switzerland
03 2011	<b>Visiting Scientist</b> under EURATOM-Mobility Staff Movement	Royal Institute of Technology Stockholm, Sweden
04 2011	<b>Visiting Scientist</b> under EURATOM-Mobility Staff Movement	The National Fusion Laboratory CIEMAT, Madrid Spain
12 2011	<b>Visiting Scientist</b> under EURATOM-Mobility Staff Movement	The National Fusion Laboratory CIEMAT, Madrid Spain
05 2011	<b>Visiting Scientist</b> under EURATOM-Mobility Staff Movement	Max Plank Institut für Plasma Physik, Garching Germany
02-03 2012	<b>Staff Secondment at JET</b>	Culham Centre for Fusion Science, Culham, Oxford UK
07-09 2013	<b>Staff Secondment at JET</b>	Culham Centre for Fusion Science, Culham, Oxford UK
05 2014	<b>Visiting Scientist</b> under EURATOM-Mobility Staff Movement	Max Plank Institut für Plasma Physik, Garching Germany
07 2014	<b>Staff Secondment at JET</b>	Culham Centre for Fusion Science, Culham, Oxford UK

## National and International Conferences

09 2000	<b>EU-US Turbulence Task Force Meeting workshop</b>	Varenna, Italy
04 2002	<b>7<sup>th</sup> Easter Plasma Meeting</b> Oral presentation see reference [C1]	Torino, Italy
06 2002	<b>29<sup>th</sup> EPS Conference on Plasma Physics and Controlled Fusion</b>	Montreux, Switzerland

10 2003	<b>45<sup>th</sup> APS-Division of Fusion Plasma Physics Conference</b>	Albuquerque, NM, USA
	Poster see	
05 2004	<b>10<sup>th</sup> IEA/RFP Workshop</b>	Padova, Italy
	Oral presentation see [C4]	
06 2004	<b>31<sup>th</sup> EPS Conference on Plasma Physics</b>	London, UK
	Poster see [B16, B14]	
09 2004	<b>EU-US Turbulence Task Force (TTF) workshop</b>	Varenna, Italy
	Oral presentation see [C3]	
11 2004	<b>46<sup>th</sup> APS-Division of Fusion Plasma Physics Conference</b>	Savannah, GA, USA
	Oral presentation see [C2]	
07 2005	<b>8<sup>th</sup> International Workshop on the Interrelationship between Plasma Experiments in Laboratory and Space</b>	Tromsø, Norway
	Oral presentation see [C6]	
09 2005	<b>11<sup>th</sup> IEA/RFP Workshop</b>	Madison, WI, USA
	Oral presentation see [C5]	
06 2006	<b>33<sup>th</sup> EPS Conference on Plasma Physics and Controlled Fusion</b>	Rome, Italy
	Poster presentation see [B29]	
10 2006	<b>48<sup>th</sup> APS-Division of Fusion Plasma Physics Conference</b>	Philadelphia, PA, USA
	Poster presentation see [B30]	
04 2007	<b>12<sup>th</sup> US-EU Transport Taskforce Workshop</b>	San Diego, CA, USA
	Oral presentation see [C8]	
09 2007	<b>Momentum transport in jets, disks and laboratory plasmas</b>	Alba, Italy
06 2008	<b>35<sup>th</sup> EPS Conference on Plasma Physics</b>	Hersonissos, Greece
	Oral presentation see [B37]	
06 2008	<b>EFTSOMP2008 - Workshop on Electric Fields, Turbulence and Self-Organisation in Magnetized Plasmas</b>	Hersonissos, Greece
	Oral presentation see [C11]	
09 2008	<b>EU-US Turbulence Task Force (TTF) workshop</b>	Copenhagen, Denmark
	Poster presentation	
10 2008	<b>13<sup>th</sup> IEA/RFP Workshop</b>	Stockholm, Sweden
	Oral presentation see [C10]	
03 2009	<b>Workshop on Cross-Scale Coupling in Plasmas</b>	Cosenza, Italy
	Oral presentation see [C14]	
06 2009	<b>35<sup>th</sup> EPS Conference on Plasma Physics and Controlled Fusion</b>	Sofia, Bulgaria
	Poster presentations see [B42, B41]	
09 2009	<b>2<sup>nd</sup> EFDA Transport Topical Group Meeting</b>	JET, Culham, UK
	Oral presentations see [C13, C12]	
04 2010	<b>14<sup>th</sup> IEA/RFP Workshop</b>	Padova, Italy
11 2010	<b>52<sup>th</sup> APS-Division of Fusion Plasma Physics Conference</b>	Chicago, IL, USA
	Oral presentation see [B53] and Poster presentation see [B54]	
10 2011	<b>15<sup>th</sup> IEA/RFP Workshop</b>	Madison, WI, USA
	Oral presentation see [C15]	
07 2012	<b>EFTSOMP2010 - Workshop on Electric Fields, Turbulence and Self-Organisation in Magnetized Plasmas</b>	Stockholm, Sweden
	Invited lecture, see [C16]	
10 2012	<b>24th IAEA Fusion Energy Conference</b>	San Diego, CA, USA
	Poster presentation see [B68]	
03 2013	<b>6th International Workshop on Stochasticity in Fusion Plasmas</b>	Jülich, Germany
	Oral presentation see [C17]	
06 2014	<b>41st EPS Conference on Plasma Physics</b>	Berlin, Germany
	Invited Lecture see [C18]	

## Invited lectures

July 2000 **Workshop on Electric Field and Self-Organisation in Magnetized Plasmas**

Stockholm, Sweden. Invited lecture title *The role of 3D fields on edge and SOL turbulence*

June 2014 **41st EPS Conference on Plasma Physics**

Berlin, Germany. Invited lecture title *Magnetic perturbation as a viable tool for edge turbulence modification*

## Competition and Habilitation

**05 2009** Public selection (Ref. 364/13) held by Consiglio Nazionale delle Ricerche. Advisor Committee:

- Prof. A. Fasoli, Full Professor, Ecole Polytechnique Federal Lausanne, Switzerland
- Dr. V. Antoni, Director Istituto Gas Ionizzati, Consiglio Nazionale delle Ricerche
- Dr. D. Farina, Research Scientist, Istituto di Fisica del Plasma, Consiglio Nazionale delle ricerche, Milano

The competition included two written exams and one colloquium. The candidate results the winner of the competition with a final mark of 104.5/120

**2012** National Scientific Qualification (Abilitazione Scientifica Nazionale). Public evaluation of the competences and scientific achievements to obtain the qualification of *Professore Associato* (Associate Professor) in Experimental Physics on Material Science (settore concorsuale 02/B1 Fisica Sperimentale della Materia). Grade: Excellent

## Skills

### IT skills

**Operating systems** Linux, Unix, Windows, Mac OSX, Open VMS

**Programming** IDL (Interactive Data Language), Python, Bash Scripting, Gnuplot, GIT Version Control

**Office Design** Microsoft Office (Word, Excel, Powerpoint), iWork, L<sup>A</sup>T<sub>E</sub>X, web, emails  
Adobe InDesign, Adobe Illustrator

### Technical skills

- (i) Competences in data analysis and interpretation
- (ii) Competences in image processing
- (iii) Competences in designing of electrostatic and magnetic plasma diagnostics
- (iv) Competences in UHV technology and plasma materials
- (v) Competences in data acquisition through MDSPLUS technology

## Languages

**Mother tongue(s)** Italian

Self-assessment	According to European Level									
	Understanding				Speaking				Writing	
	Listening		Reading		Listening		Reading			
	C1	Proficient User	C2	Proficient User	C2	Proficient User	C2	Proficient User	C1	Proficient User

## Duties and Responsibilities

- 2007 - 2015** Responsible Scientist for edge manipulators in RFX-mod device. Responsibilities implies the maintenance and improvement of the two manipulators used in RFX-mod for the insertion of edge probes, including maintenance and improvement of the probe heads. Development of new complex probe head, project which has required the coordination between design, mechanical and diagnostic technicians.
- 2009** Task force leader in RFX-mod experiment for task force *Particle, Momentum and energy transport*. The task force was in charge to implement experimental proposals aimed to the comprehension of physical mechanisms which regulate particle momentum and energy transport in RFX-mod. The task force leaders together with the Scientific Coordinators take part to the decision processes concerning the experimental program of the machine, deciding priorities and objectives.
- 2010** Task force leader in RFX-mod experiment for task force *Physics integration for high performance RFP*. The task force aimed to coordinate all the efforts devoted to the comprehension of the physical mechanism behind the appearance of improved confinement regimes in RFX-mod, to establish the physical requirement for a controlled achievement of h-mode confinement regime and to explore all the still open basic physics issues whose knowledge could help to improve plasma performances. As in the previous year the task force leaders take part to the scientific program schedule, coordinating in particular the activities for the high current performance operations.
- 2011** Coordinator of the EFDA working group *3D field effects in edge and SOL and diagnostic development* under EFDA Transport Topical Group. This working group has been established to coordinate the effort promoted by different EFDA associations on the following subject:
1. Investigation on the effect of non-axisymmetric fields on the filamentary structures (L and H-mode regimes)
  2. Investigation into changes in edge transport due to the application of 3D fields
  3. Characterization of the edge turbulence in these 3D situations (including effect of ion temperature and 3D fast particle losses)
  4. Edge turbulence and transport modelling by incorporating 3D field effects into the codes.
  5. Comparison studies between tokamaks, stellarators and RFPs on the above topics.
- The coordinators promote exchange of results between different association and the definition of common objectives which facilitate the comparison between different devices.
- 2012** Member of the Program committee of the 17th Joint EU-US Transport Task Force Meeting in combination with the 4th EFDA Transport Topical Group meeting, 3-6 September 2012, Padova, Italy

- 2013** Scientific Coordinator of back-up experiment **B13-19 Investigation of M-Mode** on JET campaigns C31-C34. This implies the coordination of the experimental activity in order to investigate the so called *M-Mode*, a particular state of the plasma characterized by a medium grade confinement accompanied by the appearance of an alfvénic like oscillations. Coordination means assigning activities to the experimental team, plan the possible experimental campaign to be designed in collaboration with Session leaders, establish scientific objectives and monitoring scientific activities.
- 2014** Scientific Coordinator of experiment **AUG14-2.2.3, SOL filamentary transport at high density**, under the MST1 Eurofusion Work-Packages
- 2015** Scientific Coordinator of experiment **TCV15-2.2-3: Filamentary Transport in the SOL** under MST1 Eurofusion Work-Package
- 2015** Scientific Coordinator of experiment **TCV15-1.5-1, Mitigation of high Z impurity accumulation through combined central ECRH and tailoring of MHD activity in high performance H-modes** under MST1 Eurofusion Work-Package

## Pedagogical activity

### Teaching

- 2008-2009 **Assistant for the course *Fluid and Plasma Physics*** University of Padova  
tenured Prof. T. Bolzonella. Tot. 4 h. Seminar on MHD and Fluid turbulence. A summary is presented on the theory and experimental results on turbulence, both in ordinary fluid and in plasmas. A description of the most recent results regarding turbulence and eddy's characterization in thermonuclear relevant plasmas is given. Exercises on fluid turbulence
- 2010 **Assistant for the course *Fluid and Plasma Physics*** University of Padova  
tenured Prof. T. Bolzonella. Tot. 6 h. Tangential stresses in ordinary fluid. Seminar on MHD and fluid turbulence (see previous years)
- 2011-2012 **Assistant to the course *Fundamental of Plasma Physics*** University of Padova  
Tenured Prof. G. Serianni. Tot 8h. Lectures on plasma waves including Plasma Oscillations, Langmuir waves, Ion acoustic waves, Upper and Lower Hybrid waves, Whistler waves and MHD waves (magneto-acoustic and Alfvén waves)
- 2012-2013 **Assistant to the course *Fundamental of Plasma Physics*** University of Padova  
Tenured Prof. G. Serianni. Tot 10h. Lectures on plasma waves including Plasma Oscillations, Langmuir waves, Ion acoustic waves, Upper and Lower Hybrid waves, Whistler waves and MHD waves (magneto-acoustic and Alfvén waves), plasma stability
- 2013-2014 **Assistant to the course *Fundamental of Plasma Physics*** University of Padova  
Tenured Prof. G. Serianni. Tot 10h. Lectures on plasma waves including Plasma Oscillations, Langmuir waves, Ion acoustic waves, Upper and Lower Hybrid waves, Whistler waves and MHD waves (magneto-acoustic and Alfvén waves), plasma stability
- 2013-2014 **Joint Research Doctorate and European Interuniversity Doctoral Network on Fusion Science and Engineering** University of Padova  
Lecturer for basic Physics course. Tot 4h. Lecture on Transport and Turbulence
- 2014-2015 **Assistant to the course *Fundamental of Plasma Physics*** University of Padova  
Tenured Prof. G. Serianni. Tot 10h. Lectures on plasma waves including Plasma Oscillations, Langmuir waves, Ion acoustic waves, Upper and Lower Hybrid waves, Whistler waves and MHD waves (magneto-acoustic and Alfvén waves), plasma stability

### Supervising

- 2007 **Supervisor for Bachelor Thesis in Physics** University of Padova  
**Candidate:** Alessandro Scaggion  
**Thesis title:** *Electrostatic fluctuations characterization in RFX-mod experiment in different experimental condition*  
**Thesis subject:** Characterization of floating potential measurements as obtained from an internal array of sensors in different discharge conditions highlighting dependence on equilibrium and density.
- 2009 **Supervisor for M.Sci Thesis in Physics** University of Padova  
**Candidate:** Alessandro Scaggion  
**Thesis title:** *Filamentary structures in the edge turbulence of fusion device*  
**Thesis subject:** Characterization of turbulence electromagnetic structures in two different devices: RFX-mod Reversed Field Pinch experiment, characterized by the presence of Drift-Alfvén filaments, and ASDEX-Upgrade tokamak, with emphasis on type I ELM's filaments.
- 2011 **Supervisor for Bachelor Thesis in Physics** University of Padova  
**Candidate:** Alberto Mazzi  
**Thesis title:** *Experimental evaluation of toroidal velocity distribution in the edge region of RFX-mod and its impact on high density regimes*  
**Thesis subject:** Experimental determination of the spatio-temporal distribution of the toroidal velocity in RFX-mod and its relationship with edge magnetic topology. The strong link between magnetic islands and plasma flow distribution is addressed.
- 2013 **Supervisor for M.Sci. Thesis in Physics** University of Padova  
**Candidate:** Alberto Mazzi  
**Thesis title:** *Analysis of vorticity coherent structures in magnetically confined plasmas*  
**Thesis subject:** Experimental characterization of vorticity and parallel current associated to the existence of plasma structure at large scales (associated to MHD activity) and small scales (associated to fully developed MHD turbulence)

## Summary of research interest

I've been involved in fusion plasma science since my M.Sci. thesis in Physics in 1999. During these 13 years I've tried to expand as much as possible my personal research skills focusing in particular on collection, analysis, interpretation and modeling of experimental data collected in fusion oriented experiments (Reversed Field Pinches, Tokamaks and Stellarators), with particular emphasis on the comparison with theoretical and numerical results. Main research subjects may be summarized as follow:

- (a) **Electromagnetic turbulence induced transport:** with emphasis on anomalous transport studies induced by different source of turbulence: electrostatic as Drift-induced or interchange induced transport, or electromagnetic including the role of magnetic flutter fluxes in the mechanism of particle and energy losses
- (b) **Statistical analysis of plasma turbulence:** the topic allowed me to get confident with advanced statistical tool (as Wavelet Transforms, Local Intermittency Measurements, Waiting Time distribution) and with dynamical system model as Self-Organized Criticality (SOC) systems, shell-models
- (c) **Blobs and ELM filaments:** non linear coherent structures arising as a non-linear evolution of plasma instabilities have been experimentally investigated. The research includes studies on the generation and evolution of these structures including their parallel dynamics with emphasis on turbulent *blobs* and ELM *filaments*
- (d) **Sheared flow generation** and non linear interaction between turbulence and sheared flows including experimental investigation of the role of Maxwell and Reynolds stress in the momentum generation of edge flow in Reversed Field Pinches
- (e) **Numerical modeling of electromagnetic plasma turbulence** using fluid approach

- (f) **Magnetic topology and its relation with plasma flow**, with emphasis on the effect of non-axisymmetric magnetic field perturbation on kinetic properties of the plasma, as plasma flow, ambipolar electric field and Plasma Wall Interaction
- (g) **Beam plasma interaction** with emphasis on Alfvén instabilities, Energetic Particle Driven instabilities, and turbulent transport of energetic ions

Among the results the following should be highlighted:

- (i) First experimental proof of non applicability of *Self Organized Criticality* paradigm to edge plasma turbulence [A8, A3]
- (ii) First experimental evidence of non-linear generation of edge flow in Reversed Field Pinches through Reynolds stress mechanism [A29, A28]
- (iii) First experimental measurements of parallel current associated to coherent structures in a fusion relevant plasma [A53]
- (iv) First experimental evidence of the existence of a particular class of coherent structure, named *Drift-Kinetic Alfvén vortices*, arising because of the non linear coupling of Drift and Kinetic Alfvén waves in a laboratory plasma [A62]. This type of structure has been previously detected in the magnetosphere
- (v) First experimental estimate of parallel current associated to Edge Localized Modes filament [A75]
- (vi) First experimental measurements of 2D current distribution associated to plasma blobs [A64]
- (vii) Experimental evidence of transition towards helical states in high current Reversed Field Pinch operation [A45]

In all my carrier I've always tried to conjugate a strong experimental insight on the data collection, participating in all the experimental activities mandatory in order to obtain useful experimental results, and a rigorous theoretical approach in the data analysis and interpretation, using theories and numerical tools as a framework to understand real plasma signals. This approach helped me to build a bridge between theories and experiments, a necessary effort in order to understand complex plasma dynamics.

## Active collaborations

Institute	Contact person	Subject
Department of Physics, DTU Technical University of Denmark	V. Naulin and J. Rasmussen	Edge turbulence in tokamaks, including ELM filaments. Fluid turbulence codes
CRPP Lausanne	I. Furno	Blobs in Simple Toroidal Torus
CIEMAT, Spain	C. Hidalgo	Edge filament structures in Stellarators
KTH Stockholm	H. Bergsaker and L. Frassinetti	Characterization of the edge region of RFP experiment Extrap-T2R
MIT, Boston	J. Terry	Edge turbulence in Alcator C-Mod
IPP, Garching	H. W. Müller and D. Carralero	Electromagnetic turbulence at the edge of ASDEX-Upgrade, ELMs
JET, Culham	E. Solano	Investigation of M-Mode on JET

## Other

I'm regular referee for Physical Review Letters, Plasma Physics and Controlled Fusion, Nuclear Fusion, New Journal of Physics

## Publications

I have authored a total number of 98 Articles in peer reviewed journal, 87 conference



proceedings and personally presented 18 oral contribution.

h-index factor: 21 according to ISI Web of Knowledge (last update October 20, 2015)

### article in peer-review journal

- [A1] V. Antoni, R. Cavazzana, L. Fattorini, E. Martines, G. Serianni, M. Spolaore, L. Tramontin, and N. Vianello “Effects of pulsed poloidal current drive on the edge region of a reversed field pinch plasma”, *Plasma Physics and Controlled Fusion* **42**, 893–904, (2000).
- [A2] V. Antoni, E. Martines, D. Desideri, L. Fattorini, G. Serianni, M. Spolaore, L. Tramontin, and N. Vianello “Electrostatic transport reduction induced by flow shear modification in a reversed field pinch plasma”, *Plasma Physics and Controlled Fusion* **42**, 83–90, (2000).
- [A3] V. Antoni, V. Carbone, R. Cavazzana, G. Regnoli, N. Vianello, E. Spada, L. Fattorini, E. Martines, G. Serianni, M. Spolaore, L. Tramontin, and P. Veltri “Transport processes in reversed-field-pinch plasmas: Inconsistency with the self-organized-criticality paradigm”, *Phys. Rev. Lett.* **87**, 045001, (2001).
- [A4] V. Antoni, V. Carbone, E. Martines, G. Regnoli, G. Serianni, N. Vianello, and P. Veltri “Electrostatic turbulence intermittency and MHD relaxation phenomena in a RFP plasma”, *Europhys Lett* **54**, 51–57, (2001).
- [A5] V. Antoni, M. Valisa, L. Apolloni, M. Bagatin, W. Baker, O. Barana, R. Bartiromo, P. Bettini, A. Boboc, T. Bolzonella, A. Buffa, A. Canton, S. Cappello, L. Carraro, R. Cavazzana, G. Chitarin, S. Costa, F. D’Angelo, S. D. Bello, A. D. Lorenzi, D. Desideri, D. F. Escande, L. Fattorini, P. Fiorentin, P. Franz, E. Gaio, L. Garzotti, L. Giudicotti, F. Gnesotto, L. Grando, S. Guo, P. Innocente, A. Intravaia, R. Lorenzini, A. Luchetta, G. Malesani, G. Manduchi, G. Marchiori, L. Marrelli, P. Martin, E. Martines, S. Martini, A. Maschio, A. Masiello, F. Milani, M. Moresco, A. Murari, P. Nielsen, M. O’Gorman, S. Ortolani, R. Paccagnella, R. Pasqualotto, B. Pegourie, S. Peruzzo, R. Piovani, N. Pomaro, A. Ponno, G. Preti, M. Puiatti, G. Rostagni, F. Sattin, P. Scarin, G. Serianni, P. Sonato, E. Spada, G. Spizzo, M. Spolaore, C. Taliercio, G. Telesca, D. Terranova, V. Toigo, L. Tramontin, N. Vianello, M. Viterbo, L. Zabeo, P. Zaccaria, P. Zanca, B. Zaniol, L. Zanutto, E. Zilli, and G. Zollino “Transport mechanisms and enhanced confinement studies in RFX”, *Nucl. Fusion* **41**, 431–436, (2001).
- [A6] E. Martines, M. Spolaore, V. Antoni, G. Regnoli, N. Vianello, R. Cavazzana, G. Serianni, and L. Tramontin “ $E \times B$  velocity shear and intermittent structures in RFX”, *Czechoslovak Journal Of Physics* **51**, 983–993, (2001).
- [A7] G. Serianni, V. Antoni, H. Bergsaker, P. R. Brunsell, J. Drake, M. Spolaore, H. Satherblom, and N. Vianello “Electrostatic fluxes and plasma rotation in the edge region of EXTRAP-T2R”, *Czechoslovak Journal Of Physics* **51**, 1119–1127, (2001).
- [A8] E. Spada, V. Carbone, R. Cavazzana, L. Fattorini, G. Regnoli, N. Vianello, V. Antoni, E. Martines, G. Serianni, M. Spolaore, and L. Tramontin “Search of self-organized criticality processes in magnetically confined plasmas: Hints from the reversed field pinch configuration”, *Phys. Rev. Lett.* **86**, 3032–3035, (2001).
- [A9] M. Spolaore, V. Antoni, M. Bagatin, D. Desideri, L. Fattorini, E. Martines, G. Serianni, L. Tramontin, and N. Vianello “Study of edge plasma properties comparing operation in hydrogen and helium in RFX”, *Journal of Nuclear Materials* **290-293**, 729–732, (2001).
- [A10] V. Carbone, R. Cavazzana, V. Antoni, L. Sorriso-Valvo, E. Spada, G. Regnoli, P. Giuliani, N. Vianello, F. Lepreti, R. Bruno, E. Martines, and P. Veltri “To what extent can dynamical models describe statistical features of turbulent flows?”, *Europhys Lett* **58**, 349–355, (2002).
- [A11] P. Martin, S. Martini, V. Antoni, L. Apolloni, M. Bagatin, W. Baker, O. Barana, R. Bartiromo, P. Bettini, A. Boboc, T. Bolzonella, A. Buffa, A. Canton, S. Cappello, L. Carraro, R. Cavazzana, G. Chitarin, S. Costa, F. D’Angelo, S. D. Bello, A. D. Lorenzi, D. Desideri, D. F. Escande, L. Fattorini, P. Fiorentin, P. Franz, E. Gaio, L. Garzotti, L. Giudicotti, F. Gnesotto, L. Grando, S. Guo, P. Innocente, A. Intravaia, R. Lorenzini, A. Luchetta, G. Malesani, G. Manduchi, G. Marchiori, L. Marrelli, E. Martines, A. Maschio, A. Masiello, F. Milani, M. Moresco, A. Murari, P. Nielsen, M.

- O’Gorman, S. Ortolani, R. Paccagnella, R. Pasqualotto, B. Pegourie, S. Peruzzo, R. Piovan, N. Pomaro, A. Ponno, G. Preti, M. Puiatti, G. Rostagni, F. Sattin, P. Scarin, G. Serianni, P. Sonato, E. Spada, G. Spizzo, M. Spolaore, C. Taliercio, G. Telesca, D. Terranova, V. Toigo, L. Tramontin, M. Valisa, N. Vianello, M. Viterbo, L. Zabeo, P. Zaccaria, P. Zanca, B. Zaniol, L. Zanotto, E. Zilli, and G. Zollino “*New insights into MHD dynamics of magnetically confined plasmas from experiments in RFX*”, *Nucl. Fusion* **42**, 247–257, (2002).
- [A12] E. Martines, V. Antoni, R. Cavazzana, G. Regnoli, G. Serianni, M. Spolaore, N. Vianello, M. Hron, and J. Stockel “*Coherent structures in the plasma edge turbulence of the RFX and CASTOR experiments*”, *Czechoslovak Journal Of Physics* **52**, 13–24, (2002).
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## Declaration

I hereby declare that the above information are true and correct to the best of my knowledge and belief and in the event of any information being found false or incorrect, my candidature will be liable to be canceled.

Padova, October 20, 2015



(Nicola Vianello)