

Friday 13<sup>th</sup> July, 2012

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**Personal Information**

Name: Nicola Vianello  
 Date and Place of Birth: Mestre-Venezia, 14 August 1975  
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**Education and Qualifications**

1994 **High School** Liceo Scientifico U. Morin, Mestre, Venezia, *56 out 60*  
 March 1999 **Laurea in Fisica** Università degli Studi di Padova, Padova, Italy  
 (M.Sci Physics) *110 out 110 cum Laude*  
 Thesis Title: *Trasporto di particelle ed energia per effetto di turbolenza elettrostatica in plasmii confinati in configurazione Reversed Field Pinch*  
 (Particle and energy transport induced by electrostatic turbulence in Reversed Field Pinch plasmas)  
 Supervisor: Prof. S. Lo Russo, Dr. V. Antoni  
 Topics: Electrostatic anomalous transport. Sheared Flows.  
 Active modification of boundary flow through edge biasing  
 March 2002 **Ph.D in Energetics** Università degli Studi di Padova, Padova, Italy  
 Thesis Title: *Self-organization phenomena and coherent structure generation in magnetized plasmas*  
 Supervisor: Prof. A. Buffa, Dr. V. Antoni  
 Topics: Electromagnetic turbulence in Reversed Field Pinches and Tokamaks.  
 Anomalous transport. Self Organized Criticality.

**Further Education**

2000 October **International School of Plasma Physics and Ultrafast Optics** Capri, Italy  
 2001 September **5<sup>th</sup> Carolus Magnus Euro-Summer School on Plasma and Fusion Energy Physics** Badhonnef, Germany  
 2002 January **International School on Topics in Nonlinear Dynamics** Venice, Italy  
 2011 June **5<sup>th</sup> International Iter Summer School** Aix-en-Provence, France  
 MHD and Energetic Particles

**Employment**

March-October 1999 **Consorzio RFX, Padova, Italy** Research fellow  
 November 2002 - April 2003 **Consorzio RFX, Padova, Italy** Research fellow  
 May 2003-December 2005 **Consorzio RFX, Padova, Italy** Research Scientist  
 January 2006 - July 2009 **Consorzio RFX, Padova, Italy** Research Scientist, Permanent position  
 July 2009 - Date **Consiglio Nazionale delle Ricerche (Research National Institute)** Researcher, Permanent position  
 Padova, Italy *See Competition section*

**Further experiences**

2001 5 March-15 June Visiting scientist under Royal Institute of Technology

2002	1 May-30 June	EURATOM-Mobility staff movement Visiting scientist under EURATOM-Mobility staff movement	Stockholm, Sweden Royal Institute of Technology Stockholm, Sweden
2003	2 March-30 April	Visiting scientist under EURATOM-Mobility staff movement	Royal Institute of Technology Stockholm, Sweden
2004	19 April -19 June	Visiting scientist under EURATOM-Mobility staff movement	Royal Institute of Technology Stockholm, Sweden
2005	16 October - 19 November	Visiting scientist under EURATOM-Mobility staff movement	Risø National Laboratory Risø, Denmark
2008	11 - 15 February	Visiting scientist under EURATOM-Mobility staff movement	Max-Planck Institut für Plasmaphysik Garching, Germany
2009	12 - 15 May	Visiting scientist under EURATOM-Mobility staff movement	Max-Planck Institut für Plasmaphysik Garching, Germany
2009	09 - 13 November	Visiting scientist under EURATOM-Mobility staff movement	Centre der Recherches en Physique des Plasmas, EPFL, Lausanne, Switzerland
2011	07 - 11 March	Visiting scientist under EURATOM-Mobility staff movement	Royal Institute of Technology Stockholm, Sweden
2011	13 - 15 April	Visiting scientist under EURATOM-Mobility staff movement	The National Fusion Laboratory, CIEMAT Madrid, Spain
2011	23 - 27 May	Visiting scientist under EURATOM-Mobility staff movement	Max-Planck Institut für Plasmaphysik Garching, Germany
2012	06 February - 30 March	Secondment Staff	JET, Culham Centre for Fusion Science Culham, Oxford, UK

### National and International Conferences

2000	September	EU-US Turbulence Task Force (TTF) workshop	Varenna, Italy
2002	April	7 <sup>th</sup> Easter Plasma Meeting	Torino, Italy
2002	June	29 <sup>th</sup> EPS Conference on Plasma Physics and Controlled Fusion	Montreux, Switzerland
2003	October	45 <sup>th</sup> APS-Division of Fusion Plasma Physics Conference	Albuquerque, NM, USA
2004	May	10 <sup>th</sup> IEA/RFP Workshop	Padova, Italy
2004	June	31 <sup>th</sup> EPS Conference on Plasma Physics	London, UK
2004	September	EU-US Turbulence Task Force (TTF) workshop	Varenna, Italy
2004	November	46 <sup>th</sup> APS-Division of Fusion Plasma Physics Conference	Savannah, GA, USA
2005	July	8 <sup>th</sup> International Workshop on the Interrelationship between Plasma Experiments in Laboratory and Space	Tromsø, Norway
2005	September	11 <sup>th</sup> IEA/RFP Workshop	Madison, WI, USA
2006	June	33 <sup>th</sup> EPS Conference on Plasma Physics and Controlled Fusion	Rome, Italy
2006	October	48 <sup>th</sup> APS-Division of Fusion Plasma Physics Conference	Philadelphia, PA, USA
2007	April	12 <sup>th</sup> US-EU Transport Taskforce Workshop	San Diego, CA, USA
2007	September	Momentum transport in jets, disks and laboratory plasmas	Alba, Italy
2008	June	35 <sup>th</sup> EPS Conference on Plasma Physics	Hersonissos, Greece
2008	June	EFTSOMP2008 - Workshop on Electric Fields, Turbulence and Self-Organisation in Magnetized Plasmas	Hersonissos, Greece
2008	September	EU-US Turbulence Task Force (TTF) workshop	Copenhagen, Denmark
2008	October	13 <sup>th</sup> IEA/RFP Workshop	Stockholm, Sweden
2009	March	Workshop on Cross-Scale Coupling in Plasmas	Cosenza, Italy
2009	June	35 <sup>th</sup> EPS Conference on Plasma Physics and Controlled Fusion	Sofia, Bulgaria
2009	September	2 <sup>nd</sup> EFDA Transport Topical Group Meeting	JET, Culham, UK
2010	April	14 <sup>th</sup> IEA/RFP Workshop	Padova, Italy
2010	November	52 <sup>th</sup> APS-Division of Fusion Plasma Physics Conference	Chicago, IL, USA

2011 October 15<sup>th</sup> IEA/RFP Workshop

Madison, WI, USA

### Invited lectures and conference talk

July 2012 **Workshop on Electric Field, Turbulence and Self-Organisation in Magnetized Plasmas** *The role of 3D fields on edge and SOL turbulence*

### Competition

May 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

### Skills

#### IT skills

**Operating systems** Linux, Unix, Windows, Mac Os X, Open VMS  
**Programming** Fortran 77/90, IDL (Interactive Data Language), Python, C, Bash Scripting  
 COMSOL, Mathematica, Gnuplot, GIT Version Control  
**Office** Microsoft Office (Word, Excel, Powerpoint), iWork, L<sup>A</sup>T<sub>E</sub>X, web, emails  
**Design** Adobe InDesign, Adobe Illustrator

#### Technical skills

- Competences in data analysis and interpretation
- Competences in image processing
- Competences in fluid numerical modeling
- Competences in designing and projecting electrostatic and magnetic plasma diagnostics
- Competences in UHV technology and plasma facing and ultra high vacuum compliant materials
- Competences in data acquisition through MDSPLUS technology

### Languages

Language	Oral	Written
Italian	Native	Native
English	Fluent	Fluent

### Pedagogical activities

#### Teaching

2008-2009 Assistant for the course *Fluid and Plasma Physics*  
 tenured Prof. Tommaso Bolzonella  
 Total h 4

- Subject:** 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*  
tenured Prof. Tommaso Bolzonella  
Total h 6  
**Subject:** Tangential stress in ordinary fluids. Seminar on MHD and Fluid turbulence (see previous years)
- 2011-2012** Assistant for the course *Fundamentals of Plasma Physics*  
tenured Prof. Gianluigi Serianni  
Total h. 10  
**Subject:** Plasma oscillations, Langmuir Waves, Ion Acoustic waves, Upper and Lower hybrid waves, Whistler waves, MHD waves (magneto-acoustic, Alfvén waves)

### 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 devices*  
**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.

### Duties and Responsibilities

- 2010 - Date** 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 modeling 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

### 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 [8, 3]
- (ii) First experimental evidence of non-linear generation of edge flow in Reversed Field Pinches through Reynolds stress mechanism [29, 28]
- (iii) First experimental measurements of parallel current associated to coherent structures in a fusion relevant plasma [53]
- (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 [62]. This type of structure has been previously detected in the magnetosphere
- (v) First experimental estimate of parallel current associated to Edge Localized Modes filament [75]
- (vi) First experimental measurements of 2D current distribution associated to plasma blobs [64]
- (vii) Experimental evidence of transition towards helical states in high current Reversed Field Pinch operation [45]

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
Risø National Laboratory	V. Naulin & J. Rasmussen	Edge turbulence in tokamaks, including ELM filaments. Fluid turbulence codes
CRPP Lausanne	I. Furno	Blobs in Simple Toroidal Torus
CIEMAT, Spain	D. Carallero & C. Hidalgo	Edge filament structures in Stellarators
KTH Stockholm	H. Bergsaker & 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	Electromagnetic turbulence at the edge of ASDEX-Upgrade, ELMs

### Other

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

### Publications

I have authored a total number of 151 papers and conference proceedings.

h-index factor: 17 according to ISI Web of Knowledge (last update Friday 13<sup>th</sup> July, 2012)

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Refereed research papers

1. V. Antoni, R. Cavazzana, L. Fattorini, E. Martines, G. Serianni, M. Spolaore, L. Tramontin, and N. Vianello (2000). Effects of pulsed poloidal current drive on the edge region of a reversed field pinch plasma. *Plasma Physics and Controlled Fusion* 42(8), 893–904.



2. V. Antoni, E. Martines, D. Desideri, L. Fattorini, G. Serianni, M. Spolaore, L. Tramontin, and N. Vianello (2000). Electrostatic transport reduction induced by flow shear modification in a reversed field pinch plasma. *Plasma Physics and Controlled Fusion* **42**(2), 83–90.
3. 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 (2001). Transport processes in reversed-field-pinch plasmas: Inconsistency with the self-organized-criticality paradigm. *Phys. Rev. Lett.* **87**(4), 045001.
4. V. Antoni, V. Carbone, E. Martines, G. Regnoli, G. Serianni, N. Vianello, and P. Veltri (2001). Electrostatic turbulence intermittency and MHD relaxation phenomena in a RFP plasma. *Europhys Lett* **54**(1), 51–57.
5. 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. 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, N. Vianello, M. Viterbo, L. Zabeo, P. Zaccaria, P. Zanca, B. Zaniol, L. Zanutto, E. Zilli, and G. Zollino (2001). Transport mechanisms and enhanced confinement studies in RFX. *Nucl. Fusion* **41**(4), 431–436.
6. E. Martines, M. Spolaore, V. Antoni, G. Regnoli, N. Vianello, R. Cavazzana, G. Serianni, and L. Tramontin (2001). E x B velocity shear and intermittent structures in RFX. *Czechoslovak Journal Of Physics* **51**(10), 983–993.
7. G. Serianni, V. Antoni, H. Bergs aker, P. R. Brunell, J. Drake, M. Spolaore, H. Satherblom, and N. Vianello (2001). Electrostatic fluxes and plasma rotation in the edge region of EXTRAP-T2R. *Czechoslovak Journal Of Physics* **51**(10), 1119–1127.
8. E. Spada, V. Carbone, R. Cavazzana, L. Fattorini, G. Regnoli, N. Vianello, V. Antoni, E. Martines, G. Serianni, M. Spolaore, and L. Tramontin (2001). Search of self-organized criticality processes in magnetically confined plasmas: Hints from the reversed field pinch configuration. *Phys. Rev. Lett.* **86**(14), 3032–3035.
9. M. Spolaore, V. Antoni, M. Bagatin, D. Desideri, L. Fattorini, E. Martines, G. Serianni, L. Tramontin, and N. Vianello (2001). Study of edge plasma properties comparing operation in hydrogen and helium in RFX. *Journal of Nuclear Materials* **290–293**, 729–732.
10. 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 (2002). To what extent can dynamical models describe statistical features of turbulent flows? *Europhys Lett* **58**(3), 349–355.
11. E. Martines, V. Antoni, R. Cavazzana, G. Regnoli, G. Serianni, M. Spolaore, N. Vianello, M. Hron, and J. Stockel (2002). Coherent structures in the plasma edge turbulence of the RFX and CASTOR experiments. *Czechoslovak Journal Of Physics* **52**, 13–24.
12. 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. Zanutto, E. Zilli, and G. Zollino (2002). New insights into MHD dynamics of magnetically confined plasmas from experiments in RFX. *Nucl. Fusion* **42**(3), 247–257.
13. M. Spolaore, V. Antoni, R. Cavazzana, G. Regnoli, G. Serianni, E. Spada, N. Vianello, H. Bergs aker, and J. Drake (2002). Effects of ExB velocity shear on electrostatic structures. *Phys. Plasmas* **9**(10), 4110–4113.
14. L. Tramontin, L. Garzotti, V. Antoni, L. Carraro, D. Desideri, P. Innocente, E. Martines, G. Serianni, M. Spolaore, and N. Vianello (2002). Particle balance during edge biasing experiments in the reversed field pinch RFX. *Plasma Physics and Controlled Fusion* **44**(2), 195–204.
15. N. Vianello, M. Spolaore, G. Serianni, H. Bergs aker, V. Antoni, and J. Drake (2002). Properties of the edge plasma in the rebuilt Extrap-T2R reversed field pinch experiment. *Plasma Physics and Controlled Fusion* **44**(12), 2513–2523.
16. V. Antoni, M. Bagatin, G. Serianni, N. Vianello, M. Zuin, F. Paganucci, P. Rossetti, and M. Andrenucci (2003). Plasma Fluctuations in an Applied Field MPD Thruster. *AIP Conf. Proc.* **669**(1), 302–305.
17. V. Antoni, H. Bergs aker, G. Serianni, M. Spolaore, N. Vianello, R. Cavazzana, G. Regnoli, E. Spada, E. Martines, M. Bagatin, and J. Drake (2003). Anomalous particle transport and flow shear in the edge region of RFP's. *Journal of Nuclear Materials* **313–316 IS -**, 972–975.

18. V. Antoni, G. Regnoli, M. Spolaore, G. Serianni, N. Vianello, R. Cavazzana, E. Spada, and E. Martines (2003). Transport Due to Intermittent Events and Plasma Flow Shear in Magnetized Plasmas. *AIP Conf. Proc.* **669**(1), 191–194.
19. M. Puiatti, S. Cappello, R. Lorenzini, S. Martini, S. Ortolani, R. Paccagnella, F. Sattin, D. Terranova, T. Bolzonella, A. Buffa, A. Canton, L. Carraro, D. F. Escande, L. Garzotti, P. Innocente, L. Marrelli, E. Martines, P. Scarin, G. Spizzo, M. Valisa, P. Zanca, V. Antoni, L. Apolloni, M. Bagatin, W. Baker, O. Barana, D. Bettella, P. Bettini, R. Cavazzana, M. Cavinato, G. Chitarin, A. Cravotta, F. D'Angelo, S. D. Bello, A. D. Lorenzi, D. Desideri, P. Fiorentin, P. Franz, L. Frassinetti, E. Gaio, L. Giudicotti, F. Gnesotto, L. Grando, S. Guo, A. Luchetta, G. Malesani, G. Manduchi, G. Marchiori, D. Marcuzzi, P. Martin, A. Masiello, F. Milani, M. Moresco, A. Murari, P. Nielsen, R. Pasqualotto, B. Pegourie, S. Peruzzo, R. Piovan, P. Piovesan, N. Pomaro, G. Preti, G. Regnoli, G. Rostagni, G. Serianni, P. Sonato, E. Spada, M. Spolaore, C. Taliercio, G. Telesca, V. Toigo, N. Vianello, P. Zaccaria, B. Zaniol, L. Zanutto, E. Zilli, G. Zollino, and M. Zuin (2003). Analysis and modelling of the magnetic and plasma profiles during PPCD experiments in RFX. *Nucl. Fusion* **43**(10), 1057–1065.
20. V. Antoni, H. Bergs aker, R. Cavazzana, V. Carbone, J. Drake, E. Martines, G. Regnoli, G. Serianni, E. Spada, M. Spolaore, and N. Vianello (2004). Turbulence and Anomalous Transport in Magnetized Plasmas: Hints from the Reversed Field Pinch Configuration. *Contrib. Plasma Phys.* **44**(56), 458–464.
21. F. Sattin, N. Vianello, and M. Valisa (2004). On the probability distribution function of particle density at the edge of fusion devices. *Phys. Plasmas* **11**(11), 5032.
22. M. Spolaore, V. Antoni, E. Spada, H. Bergs aker, R. Cavazzana, J. Drake, E. Martines, G. Regnoli, G. Serianni, and N. Vianello (2004). Vortex-induced diffusivity in reversed field pinch plasmas. *Phys. Rev. Lett.* **93**(21), 215003.
23. V. Antoni, E. Spada, N. Vianello, M. Spolaore, R. Cavazzana, G. Serianni, and E. Martines (2005). Shear flows generated by plasma turbulence and their influence on transport. *Plasma Physics and Controlled Fusion* **47**(12B), B13–B23.
24. G. Regnoli, H. Bergs aker, E. Tennfors, F. Zonca, E. Martines, G. Serianni, M. Spolaore, N. Vianello, M. Cecconello, V. Antoni, R. Cavazzana, and J.-A. Malmberg (2005). Observations of toroidicity-induced Alfv en eigenmodes in a reversed field pinch plasma. *Phys. Plasmas* **12**(4), 042502.
25. F. Sattin and N. Vianello (2005). Statistical model for intermittent plasma edge turbulence. *Phys. Rev. E* **72**(1), 5.
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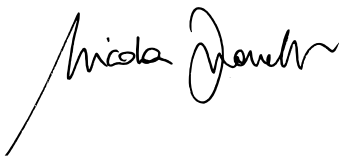
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I hereby declare that the above information are true and correct to the best of my knowledge and belief and in the event of any information being found false or incorrect, my candidature will be liable to be canceled.



Nicola Vianello  
Padova, Friday 13<sup>th</sup> July, 2012