

CURRICULUM VITAE

Piergiorgio Sonato

Personal Information

Name: Piergiorgio Sonato
Birth Date: 28 June 1958
Place of birth: Verona (ITALY)
Address: Via Giulio Zanon 74/A
I-35133 PADOVA (ITALY)
Family status: married, three daughters and one son
Languages: Italian, English, French



Education

Doctor in Electrical Engineering in the Faculty of Engineering of the University of Padova (I) with full marks and honours (110/110 and "lode") in the academic year 1981-1982.

Post-graduate course on Plasma Engineering and Controlled Thermonuclear Fusion with a final diploma with full marks and honours in the academic year 1982-1983.

Professional positions

From 1984 to 1986 he worked under temporary contracts in the team for the design and construction of the RFX experiment.

From 1986 to 1998 he was Researcher in the Istituto Gas Ionizzati of the National Research Council (C.N.R.).

From 1998 to 2001 he was Associate Professor of Electrical Science at the University of Cagliari.

From 2001 to 2011 he was Associate Professor of Electrical Science at the University of Padova.

From 2011 he is Full Professor of electrical Science at the University of Padova.

Summary

Piergiorgio Sonato has more than thirty five years of experience in thermonuclear fusion research, resulting in:

- wide competence in modelling, design, construction, installation, commissioning, exploitation and project management of components and systems;
- deep involvement in international collaboration with the tokamak community: ITER, JET, Tore Supra, Asdex Upgrade.

He has a significant experience in the management of complex projects from the conceptual design up to the operation of the systems. This implied leading a team, involving a significant number of researchers and technicians.

He has a wide experience in the management of contracts in an international environment for design, manufacturing of mechanical and electromechanical components, first wall components, Neutral Beam Injector system for ITER and Ion Cyclotron Heating antennas for ITER, JET, Tore Supra, realization of vacuum, gas injection and remote handling systems; manufacturing of electromagnetic, thermal and mechanical transducer systems to be mainly installed and operated under UHV conditions or on the mechanical structures of fusion devices.

He has also a good competence in conceptual proposals, design exploitation and data analysis of experimental campaigns mainly in RFX, but also in Tokamak devices (JET, Asdex UG, Tore Supra).

Scientific activity

He started working in 1983 on the design and construction of RFX. In this phase he was a member of the "Plasma System" group, having the direct responsibility for the following components: first wall, vacuum vessel, stabilizing shell, vacuum and gas injection system, in-vessel remote handling system and magnetic and thermal transducers.

From 1992 up to 2001, after the start of RFX operation, he assumed the role of "Plasma Engineering" Group Leader. The group included 6 to 9 researchers plus some PhD students. In this role, besides coordinating all scientific and technological activities of the group members, he has been directly in charge of:

In addition, in 1993-94 he collaborated with the Plasma Wall Interaction group coordinated by Dr. André Grosman for the exploitation of the ergodic divertor of Tore Supra.

From 1999, under the EFDA-JET Task Force M activities, he has been responsible of the activity for the application of Neural Network techniques in the prediction of the plasma disruptive events.

In 2000 he was responsible of the electromechanical calculations of the blanket modules of ITER. In the same year he collaborated to the tests on the flexible electrical contacts of the blanket modules under collaboration between ENEA-Frascati and RFX.

In 2000 he was responsible of the electromechanical calculations of the Ion Cyclotron and Lower Hybrid Antenna for ITER.

In 2001 Piergiorgio Sonato has been appointed Project Leader for the design and construction of the RFX-mod load assembly, including the new first wall, thin stabilizing shell, mechanical structure, saddle coils, electromagnetic and thermal transducers. He is member of the Programme Coordination Group of the Consorzio RFX.

From 2003 to 2007 Piergiorgio Sonato has been Project Leader for design, construction and installation of the new system of probes for the study of the "Halo Currents" in JET (JET-EP-DIA-HCS). The system has been in full operation and

produced ITER-relevant information regarding the non-axisymmetric mechanical loads on the vacuum vessel during anomalous events like disruptions and vertical displacement events.

In 2004 he had a collaboration with IPP-Garching (G) to study the application of new techniques for the prediction of the disruption events and other abnormal phenomena in ASDEX UG.

From 2004 to 2006 he has been responsible of EFDA contracts for the electromechanical and thermomechanical design of the antenna for the Ion Cyclotron Radiation Heating for ITER under three annual EFDA contracts.

In 2005-06, under the EFDA-JET Task Force FT activities, he is responsible of the activity for the implementation of disruption identification and mitigation tools.

In 2005 and 2006 he has been responsible of the electro- and thermomechanical analysis for the design of the European Superconducting Dipole under an EFDA contract.

From 2007 to 2013 is has been Project Manager of the international team for the design, construction and exploitation of the Neutral Beam Test Facility (NBTF) for the development of the Neutral Beam Injectors for ITER in Padova.

In 2014 it has been nominated Section Leader of the “R&D, Conceptual Design and Advanced Technologies” for the development of the Neutral Beam Injectors for DEMO under the activities covered by the Work Package HCD within the EUROfusion Programme.

In 2014 it has been nominated member of the EUROfusion STAC (Scientific Technical Advisory Committee) in support to the Program Manager and the General Assembly of EUROfusion the European Consortium of for the management of the European research activities in the field of controlled thermonuclear fusion. He has been renoved in this position in 2016 up to October 2017.

From September 2017 it has been nominated Director of “Consorzio RFX” a research institution with 170 staff members.

Teaching activity

From 1995 to 1998 Piergiorgio Sonato taught “Electrical Science” for the Diploma on Information Technology Engineering and Environmental Engineering in the Trento University.

From 1998 to 2004 he taught “Electrical Science”, “Theory of electric networks” and “Automatic design of electric and magnetic devices” at the University of Cagliari.

From the academic year 2001/02 he teaches “Electrical Science” and “Industrial Plasma Technologies” at Padova University.

He has been tutor of many students for their final dissertation for the Graduation of Electrical Engineers, Mechanical Engineers, Electronic Engineers, Aerospace Engineers, Material Engineers and Chemical Engineers.

He has been tutor of many PhD students both at University of Cagliari and at University of Padova.

From 1991 to 2003, he taught "UHV technology applied to fusion experiments, first wall components, vacuum vessels and surface treatments" in the postgraduate course in Plasma Engineering and Controlled Thermonuclear Fusion.

From the academic year 2003/04 to 2007/08 he taught "UHV technology applied to fusion experiments and surface treatments" for the postgraduate Master in “Plasma Physics and Engineering”.

He taught many cycle of lessons at different Doctoral Schools and Master Schools in "UHV technology applied to fusion experiments and surface treatments" and in “Neutral Beam Injectors”.

Since 2016 he is advisor of the Vice Rector for International Relations for the activities in Africa region promoted by University of Padova and he is delegate for the Development Cooperation activities at CRUI (Conferenza dei Rettori delle Università Italiane), at the Coimbra Group of Universities and at the CUCS (Coordinamento Universitario per la Cooperazione allo Sviluppo).

Further information

He received many invitations for speeches at International Conferences, Workshops and international laboratories.

He is author or co-author of more than 195 (not all recorded in Scopus where are mentioned 182 documents) scientific papers published on international journals or proceedings of international conferences, h-index 30, total citations 3848.

He is co-inventor of two patents in the field of heterogeneous mechanical joints and in the field of vacuum pumps based on Non Evaporable Getter materials:

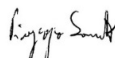
WO 2013182962 A1: Vacuum tight threaded junction, Publ. date Dec 12, 2013 (European Patent)

WO 2015198235 A1: Getter pumping system, Publ. date Dec 30, 2015 (European Patent)

He has been member of the Academic Council of FUSENET the European Fusion Education Network from 2013 to 2018.

In the position of Director of Consorzio RFX he is also member of the General Assembly of the Consortium EUROfusion.

Padova, 4 August 2020



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