

## Tokamak ISTTOK

Summary and highlights of research achievements

### Participation in the COMPASS programme

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## Part II – Scientific Output

### A. Publications

#### Books and book chapters

N/A

#### Papers in international refereed scientific journals

Author(s)	R.B. Gomes, R.Mateus; E. Alves, H. Fernandes, C. Silva, P. Duarte
Paper title	Hydrogen retention in gallium samples exposed to ISTTOK plasmas
Journal name	Fusion Engineering and Design
Volume, page	
Year	2011

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Author(s)	Carlos G Silva et al
Paper title	Characterization of the poloidal asymmetries in the ISTTOK edge plasma
Journal name	Plasma Physics and Controlled Fusion
Volume, page	
Year	2011

Author(s)	R.B. Gomes, R.Mateus; E. Alves, H. Fernandes, C. Silva, P. Duarte
Paper title	Hydrogen retention in gallium samples exposed to ISTTOK plasmas
Journal name	Fusion Engineering and Design
Volume, page	
Year	2011

Author(s)	I.S. Nedzelskiy, C. Silva, P. Duarte, and H. Fernandes
Paper title	Ion temperature fluctuation measurements using a retarding field analyzer
Journal name	Review of Scientific Instruments
Volume, page	82, 043505
Year	2011

## B. Publications and contributions in conferences and workshops

### Papers in conference proceedings

Author(s)	
Paper title	
Conference	
Volume, page	
Year	

**Invited talks**

Conference	Encontro Brasileiro de Física 2011
Start-end date	5 a 10 de junho de 2011
Location	Foz Iguaçu
Author(s)	Fernandes, H.
Talk title	The growth of physics

Conference	21º Encuentro Ibérico para la enseñanza de la física
Start-end date	19-23 Setembro de 2011
Location	Santander, Spain
Author(s)	Fernandes, H.
Talk title	Laboratorios remotos y virtuales de Física

**Oral contributions**

Conference	1st Experiment@ International Conference
Start-end date	17-18 Nov, 2011
Location	Gulbenkian, Lisbon, Portugal

Author(s)	J. Loureiro, H. Fernandes, C. Silva
Talk title	Plasma Experiment for e-lab
Conference	1st Experiment@ International Conference
Start-end date	17-18 Nov, 2011
Location	Gulbenkian, Lisbon, Portugal
Author(s)	R. B. Henriques, A. S. Duarte, H. Fernandes, T. Pereira, J. Fortunato, J. Pereira
Talk title	Generic protocol for hardware control @ e-lab
Conference	1st Experiment@ International Conference
Start-end date	17-18 Nov, 2011
Location	Gulbenkian, Lisbon, Portugal
Author(s)	S. Leal, J. P. Leal, H. Fernandes
Talk title	A blended-learning approach to the Boyle-Mariotte law
Conference	1st Experiment@ International Conference
Start-end date	17-18 Nov, 2011
Location	Gulbenkian, Lisbon, Portugal
Author(s)	V. Monteiro, A. Pereira, H. Fernandes

Talk title	“FQ em rede” and “e-lab”, Opening the school laboratories
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### Posters

Conference	
Start-end date	
Location	
Author(s)	
Talk title	

### C. Other publications and outputs

#### Patents

"SEGUIDOR SOLAR DE BAIXO PERFIL", INPI nº 106068, 21/12/2011.

#### Laboratorial prototypes

Adaptation of the high resolution spectrometer (CIII line) for doppler measurements on the COMPASS tokamak.

2-D probe array (W/BN) for the tokamak ISTTOK.

Ball-pen probe adaptation for the tokamak ISTTOK.

### D. Education and training

H. Fernandes was the local coordinator of the European Doctorate in Fusion Science and Engineering at IST and member of it's academic council.

H. Fernandes was member of the Erasmus Mundus Doctorate Steering Committee (lead by Ghent).

H. Fernandes was the coordinator of the Athens course (<http://www.athensprogramme.com/>) on "[E-lab - Remotely controlled Physics laboratories](#) " for foreigner students.

**Doctorate theses completed**

A. Neto, "The JET Vertical Stabilisation Controller Framework", IST/UTL, Lisbon (May 2011), supervised by H. Fernandes.

**Master's theses completed**

N. Silva, "SYNCHRONOUS WOUND-ROTOR ELECTRICAL MACHINE CONTROL FOR ELECTRIC AIRPLANE TAXIING", IST/UTL, Lisbon (October 2011), supervised by H. Fernandes.

J. Barcia, "Human electrooculography interface", IST/UTL, Lisbon (March 2011), supervised by H. Fernandes.

**Short training courses**

H. Fernandes was supervisor of Marcin Gębski, Technical University of Lodz, Poland, 2011 during its 3 months activity at IPFN.

**E. Distinctions and awards****Scientific committees of conferences and workshops**

Horácio Fernandes was member of the 21<sup>st</sup> Encuentro Ibérico de Enseñanza de la Física scientific committee, held at Santander, Spain, 19-23 de September 2011.

Horácio Fernandes was member of the 1st Experiment@ International Conference scientific committee held at Fundação Caloust Gulbenkian, Portugal, 17-18 November 2011.

**Management activities**

H. Fernandes was a member of the IPFN management board.

H. Fernandes was the treasurer of Sociedade Portuguesa de Física.

H. Fernandes was IST physics department vice-president (treasurer).

H. Fernandes served as a consultant specialist on the Fusion4Energy Technical Advisor Panel (TAP).

H. Fernandes served as member of IST School Assembly.

H. Fernandes was the Tokamak ISTTOK project coordinator.

**Refereeing of scientific publications**

H. Fernandes served in 2011 as referee for Review of Scientific Instruments

H. Fernandes served in 2011 as referee for Fusion Engineering and Design

H. Fernandes served in 2011 as referee for Transactions on Nuclear Science

H. Fernandes served in 2011 as referee on the International Conference on Nuclear Engineering

H. Fernandes served in 2011 as referee on the Experiment@ International Conference 2011.

### **Projects/funding awarded**

H. Fernandes was nominated principal investigator of the IAEA No. 17003/R0 concerning Research Project: "Tokamak Diagnostics, Plasma Control and Data Analysis".

H. Fernandes was granted principal investigator for the FUSENET remote lab project.

## **E. Public Information activities**

### **Media accounts of research**

H. Fernandes was interviewed for the EFDA magazine about the MARTe application to wind turbines ("Fusion software used for wind turbines")

H. Fernandes published an article on Gazeta de Física intitle "e-lab: o laboratório online" VOL. 33 - N . 3 / 4, 2010.

### **Science communication to the public**

H. Fernandes served as a professor in coaching activities for secondary teachers (IPFN course on Nuclear Fusion for secondary professors).

H. Fernandes maintain a regular activity in visit support to ISTTOK tokamak.

H. Fernandes was an activity coordinator in the "UTL in summer" for secondary students related with renewable energy (solar tracking devices)

H. Fernandes maintain regular webinars (e-lab for secondary teachers) within the FQ network community.