

13. OTHER FUSION ACTIVITIES

13.1. COLLABORATION WITH BRAZIL

IST/CFN has proceeded with the collaboration on nuclear fusion with two Brazilian Institutions:

- Laboratório de Plasmas (LP), do Instituto de Física, da Universidade de São Paulo;
- Laboratório Associado de Plasmas (LAP), do Instituto Nacional de Pesquisas Espaciais, de São José dos Campos.

The main activities carried out in 2003 were:

- Discussion of the possible participation of Brazil in the ITER Project, as an associated country to EURATOM and/or through a bilateral Agreement with Portugal;
- Discussion of new Agreements on Cooperation with LP and LAP;
- Integration of Prof. Ricardo Galvão in the CFN research team, with a six month contract with IST;
- Conceptual design of a microwave reflectometer for TCA/Br;
- Collaboration with LAP in the development of a multi-point Thomson scattering diagnostic for ETE.

13.2. COLLABORATION WITH PORTUGUESE UNIVERSITIES

The Association EURATOM/IST has proceeded with the collaboration with Portuguese universities in graduate and post-graduate education and training programmes, in physics, plasma engineering and technologies related with plasma fusion. In particular, two three¹ Ph. D. degrees have been obtained by members of the CFN staff.

13.3. PARTICIPATION IN SCIENTIFIC MEETINGS

- Members of the CFN staff have presented 62 contributed papers on 17 scientific meetings;
Two invited talks have been presented in the “X Latin American Workshop on Plasma Physics” (X LAWPP), S. Paulo, Brasil, 1-5 December 2003:
 - “Impact of ITER on the EURATOM Fusion Programme”, by Carlos Varandas;
 - “Reflectometry Diagnostics for Burning Plasma Experiments”, by Maria Emília Manso.
- Three oral contributions have been presented in scientific meetings:
 - “Computer based techniques to design antennas in microwave diagnostics for fusion plasmas”, M.E. Manso, in the “9th International Conference on Enhancement and Promotion of Computational Methods in Engineering and Science”, 25-28 November, Macau, China;

- “2D FDTD full-wave code for simulating the diagnostic of fusion plasmas with microwave reflectometry”, F. Silva, in the “9th International Conference on Enhancement and Promotion of Computational Methods in Engineering and Science”, 25-28 November, Macau, China;
- “A test-bench for the JET real-time project”, A.J.N. Batista, in the “4th IAEA TCM on Control, Data Acquisition and Remote Participation for Fusion Research”, San Diego, California, USA, July 21-23, 2003.

13.4. ORGANIZATION OF SCIENTIFIC MEETINGS AND EXHIBITIONS

- CFN is collaborating with IAEA on the organization of the “20th Fusion Energy Conference”, to be held in Vilamoura, Portugal, in 2004.
- Prof. Carlos Varandas was a member of the Programme Committee of the “30th EPS Conference on Plasma Physics and Controlled Fusion”, held in July 2003, in S. Petersburg.
- Dr. Jorge Sousa was a member of the Programme Committee of the “4th IAEA Technical Committee Meeting on Control, Data Acquisition and Remote Participation on Fusion Research, held in S. Diego, in July 2003.
- Dr. Maria Emilia Manso was the chairperson of the Scientific Committee of the “6th International Reflectometry Workshop, held in May 2003, in Los Angeles, USA.
- Dr. D. Borba was/has been member of the Programme Committee of the following International Conferences:
 - “8th IAEA Technical Committee Meeting on Energetic Particles in Magnetic Confinement System”, San Diego, California, USA, 2003;
 - “10th European Fusion Theory Conference”, Kelsinki, Finland, 2003;
 - “Theory of Fusion Plasmas, Joint Varenna, Lausanne International Workshop”, Villa Monastero, Varenna, Italy, 2004;

13.5. PARTICIPATION IN THE MANAGEMENT OF THE EUROPEAN FUSION PROGRAMME

- Some members of the Association EURATOM/IST are delegates to Committees of the European Fusion Programme and of the European Fusion Development Agreement (Table 13.1).
- Prof. Carlos Varandas is:
 - Chairman of the EFDA Steering Committee;

¹ Bruno Gonçalves, Bernardo Carvalho, Fernando Nabais

- Vice-Chairman of the “CCE-FU² Special Working Group on Possible Joint Implementation of ITER”.
- Dr. Fernando Serra was a member of:
 - Ad-Hoc Group for the Monitoring of 2003 and Overview of 2003 EFDA Technology Activities: Diagnostic;
 - Ad-Hoc Group from STAC for the “Monitoring of W7-X Project”.

13.6. PARTICIPATION IN OTHER FUSION MANAGEMENT COMMITTEES

- Prof. Maria Emilia Manso is the Chairman of the International Advisory Board on Reflectometry.
- Prof. Carlos Varandas, in his position of Chairman of the EFDA Steering Committee, was appointed by CCE-FU in its meeting of October 12th, member of the Steering Committees of the Bilateral Agreements of EURATOM with Russia, Japan and the US Department of Energy.

- Prof. Fernando Serra is a EU member of the ITPA (International Tokamak Physics Activity) Topical Group on Diagnostics.

13.7. PUBLIC UNDERSTANDING OF NUCLEAR FUSION

- Improvement of the CFN Web site (in Portuguese and English).
- Dr. Maria Emília Manso was the chairman of one session at the “4th EFDA Workshop on Public Information”, Pádua, Italy, March, 2003.

Name	Member of
Carlos Varandas	CCE-FU
	EFDA Steering Committee
	FTC ³
	CFI ⁴
	STC ⁵
Maria Emília Manso	EFDA Technology Sub-Committee
	CCE-FU
	EFDA Steering Committee
Fernando Serra	EFDA Public Information Sub-Committee
	EFDA JET Sub-Committee
	STAC ⁶
J.P. Bizarro	EFDA/PIG ⁷
J.P. Bizarro	FPC/STAC
P. Silva	STC
	EFDA Technology Sub-Committee
J. Tito Mendonça	Coordinating Committee of Inertial Fusion Energy
Carlos Silva	AFAC ⁸

Table 13.1 – Participation of members of the Association EURATOM/IST on the management of the European Fusion Programme and of the European Fusion Development Agreement

² CCE-FU means “Consultative Committee for the EURATOM Specific Research and Training Programme in the Field of Nuclear Energy Fusion

³ FTC means “Fusion Technology Committee”

⁴ CFI means “Committee Fusion Industry”

⁵ STC means “Scientific and Technical Committee”

⁶ STAC means “Scientific and Technical Advisory Committee”

⁷ PIG means “Public Information Group”

⁸ AFAC means “Administrative and Financial Advisory Committee”