

Preface

The 17th Joint Workshop on Electron Cyclotron Emission and Electron Cyclotron Resonance Heating (EC-17) was held in Deurne, The Netherlands, on May 7–10, 2012. The workshop was hosted jointly by the Control Systems Technology and Science and Technology of Nuclear Fusion Sections of the Eindhoven University of Technology and the FOM Institute DIFFER, Dutch institute for Fundamental Energy Research (formerly known as FOM-Rijnhuizen).

The meeting was organized along four main themes: electron cyclotron wave theory, experiments applying electron cyclotron waves for resonant plasma heating (ECRH) and current drive (ECCD), experiments using the measurement of electron cyclotron emission (ECE) as a diagnostic for plasma properties, and the enabling technologies. Additionally, two sessions were dedicated to the application in ITER of ECRH and ECCD and of ECE, respectively, covering the whole range from modeling of ECRH/ECCD and ECE to the design of ECRH and ECE systems for ITER and the required high power microwave source development. The contributions in each of the main themes (including the relevant contributions from the special ITER sessions) were summarized on the last day of the meeting by Y.R. Lin-Liu, S. Kubo, M. Austin, and B. Plaum, respectively. Their written summaries can be found in these proceedings at the beginning of the relevant section of papers.

During the meeting a special evening lecture 'Gyrotrons for plasma experiments – historical overview' was presented by Dr. G. Nusinovich (University of Maryland, College Park, MD, USA), recipient of the 2012 Kenneth J. Button Prize of the International Society of Infrared, Millimeter, and Terahertz Waves. The write-up of this presentation will be published elsewhere.

The success of the meeting was made possible by the quality and diversity of the contributions from each of the 80 participants originating from 17 countries as well as by the lively discussions following the oral presentations and during the poster sessions. The great diversity of applications of both ECRH/ECCD and ECE in fusion plasmas clearly demonstrates the maturity of EC waves as a major source of heating and current drive in future fusion reactors and in ECE as a major fusion plasma diagnostic. In addition, the contributions demonstrated that there is still room for significant innovation. Also in the development of theory and modelling important progress was reported improving the predictive capabilities of the models at our disposal. Finally, most contributors made the additional effort of turning their presentation into an excellent written report, which we now offer to the research community in the form of these proceedings. These are the first proceedings of a meeting in this series, which is published open access online. This should further strengthen the dissemination of the research reported at this meeting.

The Local organizing committee chaired by Pieter Nuij did an excellent job in organizing a flawless meeting. Also the excellent facilities and catering offered by the conference hotel Willibrordhaeghe made an essential contribution to the success of this meeting. I like to thank my colleagues from the International Program Committee for their help in preparing the programme of the meeting, selecting the invited and oral contributions as well as for their help in chairing and summarizing the scientific sessions.

Finally, I would like to thank the sponsors who contributed also to the financial success of the meeting: Gycom, Communications & Power Industries (CPI), General Atomics (GA), FOM Institute DIFFER, and Eindhoven University of Technology.

The members of the Local organizing Committee of EC-17 were:

Pieter Nuij (chairman, TU/e, Control Systems Technology)
Hans Oosterbeek (TU/e, Science and Technology of Nuclear Fusion)
Clazien Saris (TU/e, Science and Technology of Nuclear Fusion)
Egbert Westerhof (FOM-DIFFER)

The members of the International Program Committee were:

Egbert Westerhof (Netherlands, chairman)
Max Austin (USA)
Young-Soon Bae (Korea)
Gregory Denisov (Russia)
Daniela Farina (Italy)
Mark Henderson (ITER-IO)
Shin Kubo (Japan)
Y.R. Lin-Liu (Chinese Taipei)
John Lohr (USA)
Burkhard Plaum (Germany)
George Vayakis (ITER-IO)

This leaves me to announce that the National Institute for Fusion Science in Toki, Japan, has gracefully offered to host the next meeting in the series, which is to be held in Nara in May or June 2014. The chairman of the Local Organizing Committee will be Prof. Dr. Takashi Mutoh.

Egbert Westerhof
Nieuwegein, July 2012



EC-17 Workshop



Congratulations to
The Worldwide EC Community

*on the 17th in the series
of workshops spanning 33 years*

AND
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1980 EC-2 Oxford



1982 EC-3 Madison



1984 EC-4 Frascati

1985 EC-5 San Diego

1987 EC-6 Oxford

1989 EC-7 Hefei

1992 EC-8 Gut Ising

1995 EC-9 Borrego Springs

1997 EC-10 Ameland Island

1999 EC-11 Oh-arai

2002 EC-12 Aix-en-Provence

2004 EC-13 Nizhny Novgorod

2006 EC-14 Santorini

2008 EC-15 Yosemite

2010 EC-16 Sanya

2012 EC-17 Deurne

*Gyrotrons for
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