



We are pleased to continue the tradition of publishing the proceedings of the Carolus Magnus Summer Schools in this issue of *Transactions of Fusion Science and Technology: Proceedings of the Eighth Carolus Magnus Summer School on Plasma and Fusion Energy Physics*. We express our thanks to Dr. Bernhard Unterberg (Chair), Dr. Michael Lehnen (Scientific Secretary), Dr. Dirk Van Eester and Dr. Roger Jaspers (Program Committee), and other school organizers who helped coordinate the papers for the proceedings.

The proceedings from the past seven Carolus Magnus Summer Schools have been published in *Transactions of Fusion Technology*, **25**, 2T (1994); **29**, 2T (1996); **33**, 2T (1998); and **37**, 2T (2000); and *Transactions of Fusion Science and Technology*, **41**, 2T (2002); **45**, 2T (2004); and **49**, 2T (2006). These proceedings have been highly regarded by the fusion plasma community and used to supplement textbooks at various universities as well as used as reference material by researchers in the field.

The Eighth Carolus Magnus Summer School on Plasma and Fusion Energy Physics took place on September 3–14, 2007, in Bad Honnef, Germany. The school was organized by the Trilateral Euregio Cluster under the auspices of EURATOM Associations: Institut für Energieforschung - Plasmaphysik, Forschungszentrum Jülich GmbH, Association EURATOM - Forschungszentrum Jülich, Jülich, Germany; FOM-Institute for Plasma Physics Rijnhuizen, Association EURATOM-FOM, Nieuwegein, The Netherlands; and Laboratory for Plasma Physics, Ecole Royale Militaire-Koninklijke Militaire School, Association EURATOM-Belgian State, Brussels, Belgium. The aim of the school has been to provide PhD students and young researchers of the European Union and Associated States, as well as of other nations around the world, an opportunity to acquire a broad introduction to plasma physics and fusion energy research in magnetically confined plasmas, as well as glance at latest developments on the way to the fusion power plants.

As evident from the lectures, the program of the summer school focuses on plasma and fusion energy physics ranging from basic plasma theory and fusion machines to diagnostics, fusion burn, and fusion reactor designs. Although there is some overlap of topical areas and lectures between the present proceedings and that of the past seven schools, the readers will find that the lecturers expanded coverage and incorporated new developments in the field. In addition, the present proceedings include new and expanded coverage on fusion energy physics related to ITER, plasma-wall interactions, and fusion power plants, as well as fusion reactor materials. These proceedings should be useful to students engaged in PhD studies as supporting material and to young scientists requiring a well-documented and fairly complete view of the multifaceted field of plasma physics and fusion energy research.

We look forward to continuing this tradition for the Ninth Summer School in these series to be held in 2009. We extend special appreciation to the sponsors for their support, the members of the organizing/program committee for assistance, and the lecturers for their work and cooperation in preparing/refining their lecture notes for publication. Our thanks to all who made it all possible.

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