

Preface

This special issue of *Plasma and Fusion Research* (PFR) contains invited and contributed papers presented at the 18th International Conference on Development of Physics and Technology of Stellarators/Heliotrons, “*en route to DEMO*.” The meeting took place in Toki on December 9–12, 2008, and was organized by the National Institute for Fusion Science (NIFS). This was the eighteenth meeting of a series that originated when NIFS was established in 1989. This conference was devoted to reviewing and discussing recent developments and the next steps toward realization of the demo stellarator/heliotron type reactor. In the conference, recent experimental results from both tokamak and stellarator/heliotron devices were reviewed and the experimental and theoretical physics of plasma confinement in the toroidal devices were also discussed. Further, it was confirmed that the design basis of the fusion reactor is physically and technologically well developed. The development of steady state operation, heating, fueling, diverters, plasma wall interaction and wall materials, advanced diagnostics for reactor relevant plasma, blanket materials, and super conducting magnets were discussed as inevitable key technologies for the DEMO reactor. Apart from 109 contributed papers, two plenary papers, one review, 34 invited papers, and 6 oral papers were presented. Extended versions of the proceedings papers have been peer-reviewed by the conference organizing committee according to the standards of the PFR journal under the editorial Board of PFR. The editors and guest editors of this special issue of PFR were as follows:

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Shin KUBO

Chairperson and Guest Editor

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