Editorial

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This Special Edition of the Journal of Fusion Energy comprises papers from the 2010 Innovative Confinement Concepts (ICC) Workshop hosted by Princeton Plasma Physics Laboratory, NJ. In total there were 38 invited talks, and 103 posters representing most of the innovative fusion concepts that are funded and in operation in the US, some from abroad, and some new ideas that were presented in a 'New Concept' session.

During the last 20 years, planning for the US Fusion Energy Sciences Program has been very consistent. A 'three-legged' approach has been promoted in almost all of the official planning documents: investigate plasma science; push towards a burning plasma experiment; and retain concept innovation as a central theme of domestic research. This planning has led to a healthy portfolio approach, and a range of innovative fusion concepts that consistently produce value science and hold promise of an economic solution. Presently, ~20 innovative concepts are being investigated, with many new ideas still arising and

being tried out. Since 1998, 100's of innovators in the field of fusion energy sciences have been meeting every 18 months to share their results and new ideas: written proceedings are published here for the fourth time. This year we organized an anonymous peer review of papers for the special edition, which we hope will continue to raise the quality of science for ICCs.

This year, ICC researchers have been redirected to address pressing concerns for mainline systems. This change in direction is a natural one that follows on from two intensive planning activities—the first organized by FESAC for toroidal alternates, and the second organized by the Burning Plasma Organization. Both planning activities were excellent, and outline the future necessary steps for burning plasma science and for alternate concepts by showing how common scientific can be addressed. By addressing issues of common concern, ICCs continue to hold promise of shortening time-lines to commercial viability.

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