

GUEST EDITOR'S COMMENTS

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Research on thermonuclear plasma physics, in particular on the role of alpha particles in toroidal magnetic confinement, is the object of increasing interest despite the world economic difficulties and the poor political will that affect the construction of magnetic confinement fusion devices. However, a substantial amount of work still needs to be done to reach our final objective. Indeed, the extrapolation of our current understanding of plasma heated by external means, toward future thermonuclear plasma where temperature will be sustained mainly by alpha particles, contains assumptions that still must be verified.

The Third International Atomic Energy Agency (IAEA) meeting on alpha-particle physics held in Trieste, Italy, May 10–15, 1993, was highly stimulating because of a number of excellent presentations that were followed by animated discussions on recent progress. This topical meeting was successful, and the renewed interest in this field may be an expression of the eagerness of the plasma physics community to intensify thermonuclear fusion research. In particular, the rapid building of fusion facilities would permit the experimental and theoretical refinement of current knowledge in order to provide accurate and reliable data needed for the design of future thermonuclear power generators.

I am pleased that George Miley and the editorial board of *Fusion Technology* accepted the suggestion to devote a special issue for the proceedings of this IAEA meeting. I am particularly grateful to Luciano Bertocci of the International Center of Theoretical Physics in Trieste, Italy, who permitted the meeting to be held in such a wonderful place.