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Book Review

Title:	***Edward Teller Lectures—Lasers and Inertial Fusion Energy***
Editors:	Heinrich Hora and George H. Miley
Foreword by:	E.M. Campbell
Edition:	First
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Since 1991, the Edward Teller Medal is awarded to individual researchers in recognition of their respective pioneering experimental or theoretical work in the field of intense laser and particle beam physics, and physics application of high power drivers, which is exactly the field that the journal *Laser and Particle Beams* covers in great detail. Motivation of this research field is the investigation of properties of high energy density matter with the ultimate goal to achieve inertial fusion in the laboratory under reproducible conditions, and to develop a scientific basis for inertial fusion energy.

Thus, this book is about an old dream on how to achieve unlimited, safe, clean, and low-cost energy by laser- or beam-driven inertial nuclear fusion. It starts with an excellent overview on inertial fusion issues presented by Heinrich Hora and George H. Miley, who are among the pioneers in this field. They cover the concepts of volume and spark ignition, turn to the physics of the fast ignitor, and discuss basic issues of block ignition, via the nonlinear ponderomotive force. This topic is intensively discussed in the current literature (Badziak *et al*., 2005*a*, 2005*b*; Hora *et al*., 2005*a*, Hora, 2005*b*).

The book is a treasure for those who have worked in the field for a long time, as well as for students who just enter this exciting field, since it describes the relevant physics in a historical perspective. In this respect, it is really enlightening to read Edward Teller's keynote addresses given on various occasions.

For the first time, laser technology, as well as the advanced high power particle beam accelerators, and pulsed X-ray generators provide short and extremely intense energetic pulses. This paves the way toward fusion energy for the next generation of power stations. Thus, the long-sought dream to ignite frozen hydrogen-tritium fuel for controlled use is close to being realized. Years of research on plasma physics carried out worldwide in highly sophisticated experiments are summarized. The coverage begins with the work of John Nuckolls. Young students may be interested to read how John Nuckolls, using the first available supercomputer, addressed the problem of microimplosions/fusion explosions of Deuterium Tritium (DT) masses as small as one milligram. The problem was to find a suitable source of radiation, since the laser was only invented later. This is how the Nobel Laureate Nikolai Basov, co-inventor of the laser comes in. In their respective Teller lectures, the laureates give their vision of future developments and perspectives and even very recent work originated already in early lectures of the awardees (Hora, 2006).

Research with lasers toward inertial fusion energy is a focus of this journal's topics. Therefore, it comes as no surprise that more than 10% of all articles in *Laser and Particle Beams* were authored or co-authored by Edward Teller medalists. This is still true currently. During the past two years, Stefano Atzeni, E.M. Campbell, Heinrich Hora, J. D. Kilkenny, Jürgen Meyer-ter-vehn, George H. Miley, and G. Velarde contributed articles to this journal (Hora, 2004; Jablonski *et al*., 2005; Kilkenny *et al*., 2005; Lan *et al*., 2004; Li *et al*., 2004, Miley *et al*., 2005; Neumayer *et al*., 2005, Osman *et al*., 2004*a*, 2004*b*, 2005, Pegoraro *et al*., 2004; Perlado *et al*., 2005; Sari *et al*., 2005). The presentation of inertial research presented in this book is most valuable for all who are actively engaged in this field or follow it with great interest, and it is an excellent supplement to the textbook on inertial fusion physics by Stefano Atzeni and Jürgen Meyer-ter-vehn, which was reviewed here recently (Hora, 2005*c*).

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