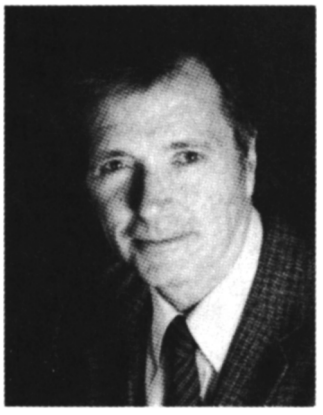
COMMENTS



We are pleased to provide this two-part issue of *Fusion Technology* (*FT*). The first part is a special section on pulsed high-density systems. The second part contains seven very stimulating regular issue papers on a variety of topics, ranging from reactor cost-estimate methods to discussions of various control systems for tokamak experiments.

The special section reflects the growing importance of high-density plasma systems of this type in fusion research. For example, one of the papers discusses the formation and acceleration of compact toroids. Such systems have increasingly been studied in recent years as a possible refueling technique for tokamaks, where they would allow a high velocity and deep penetration of the plasma and would offer a combination of refueling and helicity injection. High-velocity compact toroids can have a variety of other applications, for example, the production of X rays. Further, these configurations, and also various of the liner concepts discussed in the other papers, have been periodically viewed as leading to various forms of fusion concepts.

In the current limited funding environment, work on alternate concepts is not receiving much effort internationally. However, with programs of this type, which have other primary goals, the database for alternate concepts can continue to be expanded. Thus, this research represents an area that is important to fusion power development. Additionally, the development of pulsed power systems per se plays an important role in the overall area of fusion technology. Most noticeable is the light ion fusion effort that is squarely based on advanced pulsed power technology. However, a number of other specialized fusion research projects also use this technology.

To provide additional background information and another perspective for our readers, I asked Dr. Charles Hartman, of Lawrence Livermore National Laboratory, for his brief comments on the papers in the special section. His remarks are as follows:

> "The three papers by the High Energy Plasma Division at Phillips Laboratory discuss alternate approaches to fusion by using the Shiva Star capacitor bank. This bank, the largest of its type at 9.3 MJ, discharges on a microsecond timescale and uses inexpensive, well-tested switch and capacitor components, so that scaling to 100 MJ and higher is quite feasible. The liner paper demonstrates high-energy density with the possibility of compressing a magnetized deuterium-tritium preplasma to ignition and near energy break-even conditions. The com-

pact torus paper follows the course of accelerating low-mass compact tori to high velocity, which, when focused to small size, offers the possibility of both high-energy density and a tenfold or greater compression of timescale. Applications to fusion might include a hohlraum driver. Also, in the plasma flow switch-driven implosion paper, a method to achieve compression in timescale is described by using the plasma flow switch, where a fusion application might be a *Z*-pinch with tens of mega-ampere current. Thus, all of the approaches described provide quite promising alternatives for controlled fusion research."

Thus, the developments reported in this special section provide insight into a new technology that should be of strong interest to the *FT* readership. We look forward to hearing from readers about any comments they would have on this subject or on any of the subjects explored in the other papers in this issue.

Finally, I wish to call attention to a new format adopted for American Nuclear Society (ANS) journals including *FT*. The traditional cover artwork, beginning with the next issue, will no longer be used, and author biodata, less photos, have been moved to the end of papers. The current issue is the first to use this new format. We recognize that these changes may be somewhat controversial; however, this standardization of ANS journals is viewed as an important cost-cutting measure in these times of stringent budgets in the technical journal industry. We hope that authors and readers will find the new format attractive. Again, your views on this are important to us, so do not hesitate to share them with us.