

Editorial

Over the years, substantial resources have been devoted to research in ceramics, particularly for high-temperature structural applications. Directionally solidified eutectic (DSE) ceramics are a part of this high temperature research and development and as such are finding a new and unique niche within ceramic applications. The first international conference, “Directionally Solidified Eutectic Ceramics”, was held in Paris, France, from 5–7 May, 2003. This meeting was organized in response to the rapid growth in the science and technology of directionally solidified eutectic ceramic materials. The purpose of this workshop was to review the “state of the art” in the field of DSE ceramics as it applies to high-temperature applications. To that purpose, the modeling of various composite ceramic systems, a combined examination of the properties of new compounds and fabrication techniques, and the environmental effects on high-temperature mechanical properties of DSE ceramics has been discussed by an international field of experts. The directionally solidified eutectic ceramic meeting had three primary themes:

- High-Temperature Mechanical Properties
- Non-load bearing applications (functional DSE’s)
- Polyphase Interlocking Structures

The 2003 conference attracted over 100 delegates. Research groups from academia, government agencies and industry in Japan, USA, Korea, Ukraine, France, Germany, Spain and other European countries were in attendance. The flow of knowledge between academic, and industrial researchers has been accomplished. A particular development of recent years, the use of DSE ceramics in non-load bear-

ing applications, was of particular interest. Potential applications of DSE ceramics in microelectronics, photonics, sensors, etc was highlighted. While there is still a need for high quality structural eutectic ceramics with high toughness and complex shape capability, the growing importance multifunctional polyphase structures. This volume contains a selection of the manuscripts presented at the conference; all papers have been subjected to full external, independent peer review.

On behalf of the international organizing committee, we would like to express our gratitude to the sponsoring organizations for their financial support.

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