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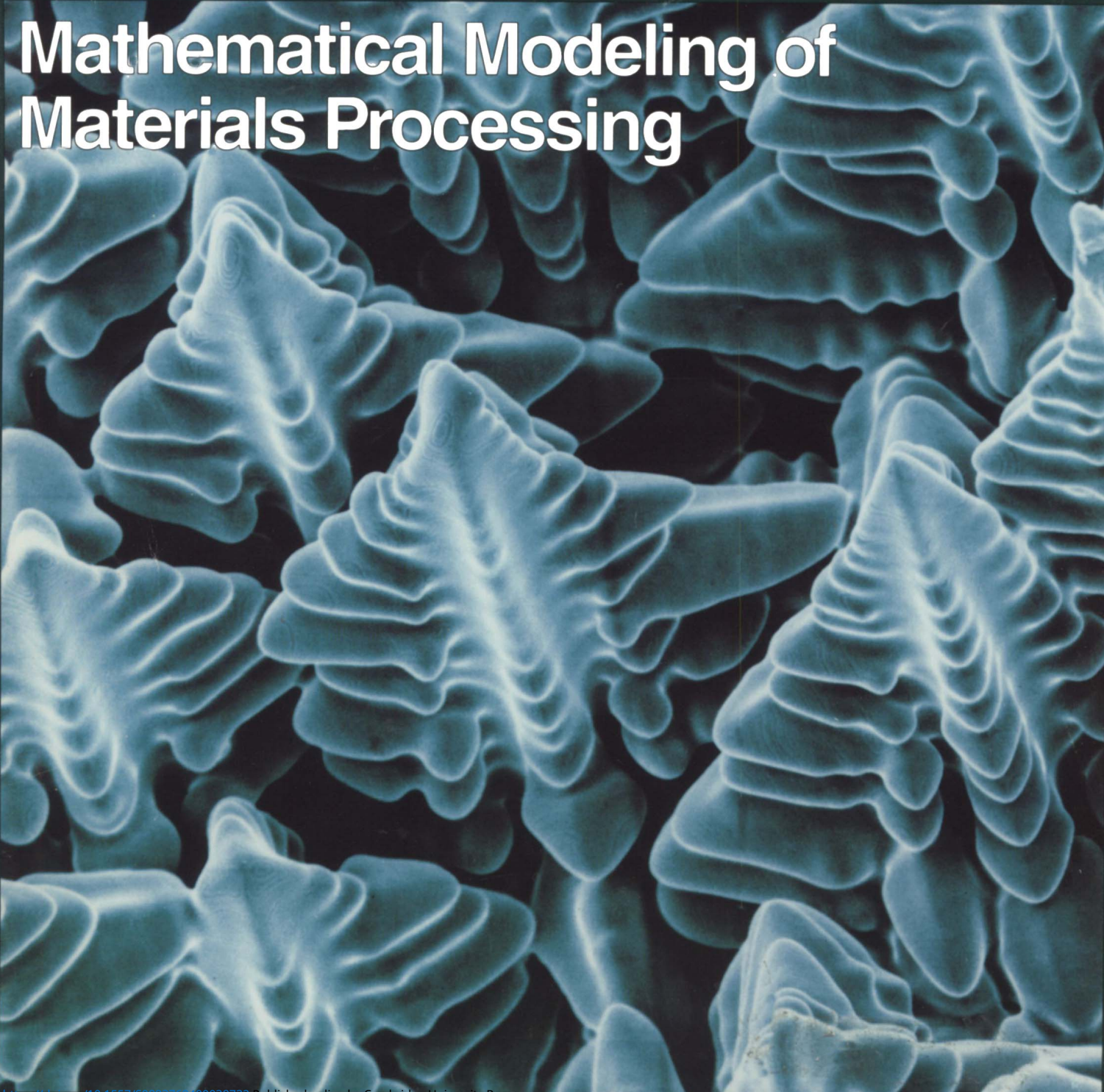
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Mathematical Modeling of Materials Processing



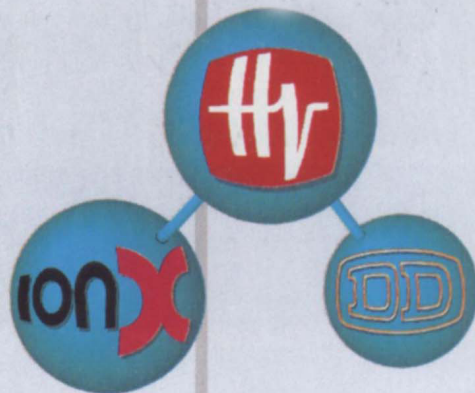
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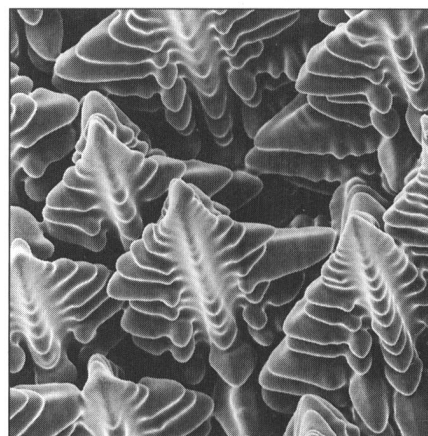
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ON THE COVER: Scanning electron micrograph shows the development of dendrites in a nickel-based superalloy single-crystal weld. The micrograph was taken on a hot-cracked surface formed during electron-beam welding of the alloy. The primary, secondary, and tertiary dendrite arms are clearly discernible. For more information, see the article by S.A. David et al. on p. 29. (Photo courtesy of S.A. David and L.A. Boatner, Oak Ridge National Laboratory.)

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The Materials Research Society (MRS), a non-profit scientific association founded in 1973, promotes interdisciplinary goal-oriented basic research on materials of technological importance. Membership in the Society includes nearly 11,600 scientists, engineers, and research managers from industrial, government, and university research laboratories in the United States and nearly 50 countries.

The Society's interdisciplinary approach differs from that of single-discipline professional societies because it promotes information exchange across the many technical fields touching materials development. MRS sponsors two major international annual meetings encompassing approximately 50 topical symposia, and also sponsors numerous single-topic scientific meetings. The Society recognizes professional and technical excellence, conducts short courses, and fosters technical interaction in local geographic regions through Sections and University Chapters.

MRS participates in the international arena of materials research through the International Union of Materials Research Societies (IUMRS). MRS is an affiliate of the American Institute of Physics.

MRS publishes symposium proceedings, *MRS Bulletin*, *Journal of Materials Research*, and other publications related to current research activities.

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