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Better Ceramics Through Chemistry VI

EDITORS

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Better Ceramics Through Chemistry VI

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Preface

This volume contains papers presented during the sixth symposium on Better Ceramics Through Chemistry at the 1994 MRS Spring Meeting, held in San Francisco, April 4-8, 1994. The symposium attracted over 100 oral presentations and 150 posters by participants from across the world. The popularity of the symposium and its technical diversity underline the growing interest in this important interface between Materials and Chemistry.

The technical program began with sessions on Precursor Chemistry and Novel Synthetic Routes, where the theme was the control of the microstructure and composition of ceramics by the subtle manipulation of the chemistry during sol-gel processing. Several of the talks reflected a growing interest in hybrid organic-inorganic materials and composites, which provided the topic for the third session and remained a dominant theme throughout the symposium. The program continued with sessions on the Design and Processing of Advanced Ceramics, which included a discussion of the steps that can be taken to improve the quality of thin films prepared by sol-gel processing. Later sessions focused on Sol-Gel Optics and Electronics, such as the formation of encapsulated sensors and the reactions of trapped molecules in porous xerogels. A similar theme was taken up in a later session on Porous Materials, where the emphasis was on novel chemical approaches that are yielding a wide range of new materials, both crystalline and glassy, in which the nanoporosity can be controlled and manipulated. These materials include the new generation of mesoporous molecular sieves, with pore sizes of up to 100 Å, which were first synthesized by scientists at Mobil using self-assembling surfactant "templates."

Other sessions in this wide-ranging meeting included discussions of Non-oxide Ceramics, especially carbides, nitrides and sulfides, Design of Nano-scale Materials, such as semiconductors in zeolites, and *in-situ* Methods of Characterization. The final session highlighted recent work in Biomaterials, where the papers covered topics ranging from synthetic bone to embedded biosensors. The large poster sessions, which were exhilarating and perhaps overwhelming, illustrated the extraordinary diversity of the current activities in this area of materials research, and the highly interdisciplinary nature of much of the work.

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We are grateful to the speakers for their excellent presentations, to the session chairs for generating a stimulating atmosphere and much discussion, and to the other participants of the symposium for their lively contributions. We especially wish to acknowledge the help that we received from the many attendees who assisted with the reviewing of manuscripts. Finally, but not least, we are most grateful to the staff of the MRS for their support and help in the organization of the symposium, and to Ms. Sonia Johnston and Ms. Wendy Hoagland of the UCSB-MRL for their tireless efforts with the proceedings.

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