



Grain Boundary Engineering in Ceramics

—From Grain Boundary Phenomena
to Grain Boundary Quantum Structures

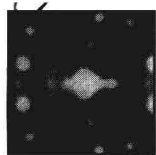
Edited by

Taketo Sakuma

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Japan Fine Ceramics Center Workshop, March 25–26, 2000, in
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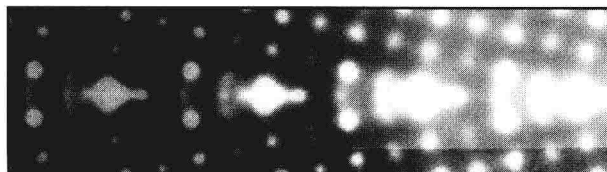
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Preface

This volume contains the selected papers presented at the 10th international workshop sponsored by the Japan Fine Ceramics Center, "Grain Boundary Engineering in Ceramics—From Grain Boundary Phenomena to Grain Boundary Quantum Structures"—which was held on March 15–17, 2000, in Nagoya, Japan. This workshop is held every two years on timely topics of ceramic materials. Past workshops discussed mass and charge transport, as well as composite structures.

Since most advanced ceramics are fabricated by sintering raw powders, grain boundaries play a key role in sintering behavior and affect various properties. Therefore, grain boundary-related subjects were often discussed in past JFCC workshops, as well as at this meeting. However, this meeting discussed grain boundaries in ceramics not only from conventional approaches, but also from novel approaches, including microscopic analysis of local atomic bonding or even quantum structures of grain boundaries. This type of microscopic analysis will enable us to design new ceramic materials in the near future. Recent data has shown that various properties in ceramics can be controlled by the presence of small dopant ions in grain boundaries, which supports this prediction.

Fortunately, a number of top-level scientists came to join this meeting from around the world, making the workshop an exciting event with many lively discussions. The high-quality papers compiled in this proceedings are evidence that leading experts attended. The editors and the Japan Fine Ceramics Center hope that this volume will be a guide to designing new ceramic materials in the future.

This workshop was subsidized by the Japan Keirin Association with promotion funds from KEIRIN RACE.

Taketo Sakuma

Laurel M. Sheppard

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KEIRIN The logo for the Japan Keirin Association, featuring the word "KEIRIN" in a bold, sans-serif font, followed by a stylized graphic of two overlapping circles.

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