Diamond Electronics and Bioelectronics—Fundamentals to Applications IV

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Diamond Electronics and Bioelectronics—Fundamentals to Applications IV

Symposium held November 29–December 3, Boston, Massachusetts, U.S.A.

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CARBON NITRIDES

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PREFACE

Symposium A, "Diamond Electronics and Bioelectronics—Fundamentals to Applications IV," was held Nov. 29–Dec. 3 at the 2010 MRS Fall Meeting in Boston, Massachusetts, and resulted in this volume covering the rapid advances in these evolving fields. Diamond in the single-crystal form has been considered to be the 'ultimate' wide bandgap semiconductor. However, it is now clear that applications outside of conventional electronics may be even more important. For example, the spectacular properties of single-point defects in diamond have destined this material to be important for the future of quantum informatics. Several other novel forms of diamond have been derived recently. These include nanocrystalline diamond films, which have unique mechanical, electronic and biocompatible properties for sensing, and diamond nanoparticles for biotechnology and drug delivery monitoring.

The symposium addressed, in particular, surface chemistry of diamond in both crystalline and nanopowder forms. Examples of applications for technologically relevant diamond coatings range from pollutant detection, to genomics, to bio-cell interfacing. In addition to diamond, the properties and performance of emerging nanostructured carbon materials, which possess a range of extreme properties and can be used as a platform for innovative sensors and biological systems, attracted attention.

In this symposium, 14 invited oral presentations, 56 contributing oral presentations, and 29 poster presentations have been contributed by teams from more than 15 countries. The symposium's overall appearance was dominated by lively discussions after presentations and during breaks between sessions. In this volume, you will find 26 selected papers from this meeting.

The organizers express gratitude to the international members of the scientific committee who actively contributed to ensure an attractive program in proposing invited speakers.

Finally, our symposium would not have been successful without the strong support of:

- Advanced Diamond Technologies, Inc.
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They all find here our sincere thanks.

Christoph E. Nebel
Philippe Bergonzo
James E. Butler
Milos Nesladek
Andrew T.S. Wee

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