

Preface

Study of matter at extreme conditions, SMEC2005

The international conference on the Study of Matter at Extreme Conditions, SMEC2005, was held during April 17–21, 2005 at the Deauville Beach Resort, Miami Beach, Florida. This was the third in the series of SMEC conferences organized by the Center for the Study of Matter at Extreme Conditions (CeSMEC) of Florida International University (FIU), Miami.

The focus of this meeting was to promote interdisciplinary research through discussion of scientific and technological issues important to academia as well as industry. With the presence of scientists of different disciplinary interests at the meeting, questions often concerned the physics, chemistry, geophysics and material science of matter under extreme conditions. In addition to a common plenary session representing various disciplines, the meeting had 18 different symposia with subject matter ranging from planetary interiors to the technologically important functional and nanostructured materials.

Despite their widely varying backgrounds and interests, the schedule of the meeting kept all participants fully engaged by providing a platform where ideas at the cutting edge of science and technology could be exchanged with great enthusiasm. We believe that the synergies and international–interdisciplinary collaborations which resulted through sharing of knowledge and cross-fertilization of ideas at the earlier meetings in this conference series led to a greater cohesion of discussions at SMEC2005.

This special issue of the *Journal of Physics and Chemistry of Solids* contains a collection of papers on the interdisciplinary themes in the field of matter under extreme conditions. The most relevant experimental and theoretical contributions presented at SMEC2005 have been selected for publication after a thorough review by disciplinary experts. The order of papers is alphabetical by the last name of the first author. This special issue, together with earlier issues on the same subject, will serve as an important reference for constructive interactions among the cadre of interdisciplinary group of scientists interested in properties of matter under extreme conditions.

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