Preface

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The twenty-first century has been called the century of environmental revolution. Green innovations and environmentally friendly production systems based on physics, chemistry, materials science, and electronic engineering will be indispensable for establishing a “recycle” oriented sustainable society, using renewable energy. We are aiming for a resource-circulating society.

For these reasons, the International Symposium on Materials Science and Innovation for Sustainable Society—eco-materials and eco-innovation for global sustainability—(ECO-MATES 2011) was organized by the Joining and Welding Research Institute (JWRI) and the Center of Environmental Innovation Design for Sustainability (CEIDS), Osaka University.

ECO-MATES 2011 was held at Hotel Hankyu Expo Park, Osaka, Japan from November 28–30, 2011. 435 participants from 20 countries around the world attended the symposium. A lot of oral and poster presentations were given at the symposium to discuss the latest researches and developments in green innovations in relation to environmental issues.

The topics of the symposium covered all environmentally related fields including renewable energy, energy-materials, environment and resources, waste and biomass, power electronics, semiconductor, rare-earth metals, functional materials, organic electronics materials, electronics packaging, smart processing, joining and welding, eco-efficient processes, and green applied physics and chemistry.

Several full papers concerning waste and biomass, green innovations, and global sustainability were submitted to Waste and Biomass Valorization (WBV), Springer, for publishing this special issue of resource-circulating society with green innovations. 8 papers were accepted through peer review processes. I believe that all the papers have many informative contents.

On behalf of the steering committee of the symposium, I would like to express my sincere appreciation to all the committees and secretariats, authors, participants of ECO-MATES 2011, and everybody involved in the publication of this special issue. It is a great honor for me that the special issue of WBV will contribute to establishing green innovations and a resource-circulating sustainable society.

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