PREFACE

This volume is a compilation of papers presented at the 8th International Conference on X-Ray Microscopy, XRM2005, held in Himeji, Japan from July 26 to 30, 2005. The conference venue was the Egret Himeji facing Himeji Castle, which is a symbol of the city and a UNESCO World Heritage site. The conference was hosted by SPring-8 and the University of Hyogo with support from Himeji City and the Nanotechnology Researchers Network Center of Japan.

The International Conference on X-Ray Microscopy, XRM, which has been held every three years since 1987 following the first conference in Göttingen (1983), is the primary international forum for the presentation and discussion of advances in high spatial resolution X-ray imaging and its applications across a broad range of science and technologies. The aim of the conference is to provide up-to-date information on recent developments in X-ray microscopy, including basic X-ray physics and technology, and applications to biology, medicine, material science, chemistry, environmental science and industry. The conference also opens the door to all the new methods for observing microstructures using X-rays as a probe, including theoretical approaches.

This conference was attended by 259 participants from 15 countries. We would like to mention that this was the first time the conference was held in Asia. The conference program consisted of 22 invited talks, 36 contributed talks and 175 poster presentations, for a total of 233 presentations. Since the total numbers of presentations at the previous two conferences were 172 (XRM99) and 194 (XRM02), it can be seen that X-ray microscopy is still in the state of growth.

This book contains 140 papers. They are classified into three sections following the main topics in the conference program. The three sections are X-Ray Microscopy Instrumentation, X-Ray Microscopy Applications, and Methods and Novel Approaches. The sections are appropriately classified into two or three sub-sections considering contents of each paper.

A spatial resolution better than 100 nm is now quite ordinary even in the hard X-ray regions. Several new ideas have been proposed to get beyond 10 nm spatial resolution. Fields of the applications are extending to a broad range of sciences, and thus it seems that the status of X-ray microscopes is changing from being a basic research tool to one used for practical and routine tasks. Three-dimensional observation based on computer tomograpy has become very popular and many results attracted the audience with sophisticated movies. Significant progress has been made in the time-resolved imaging. Pursuing structural changes with time will play important roles in the future. Studies on X-ray imaging using phase or coherence is no longer special and a few novel approaches were proposed anticipating the advent of X-ray lasers.

In the final session, the ceremony for the Werner Meyer-Ilse Award was chaired by Prof. C. Jacobsen and Prof. J. Kirz gave the concluding remarks. They are included hereafter as a comprehensive introduction of this volume.

We would like to sincerely express our gratitude to all the participants and authors for their excellent contributions to the conference and to this volume. Finally, we would like to inform that the Swiss Light Source was elected in a public election as the host of the next conference in 2008 and it will be held in Zurich, Switzerland.

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