

Preface

“GUMI & AMDE 2018” is the co-hosting symposium of 5th International Symposium of Gunma University Medical Innovation (GUMI) and 9th International Conference on Advanced Micro-Device Engineering (AMDE), which was held on December 6th, 2018 in Kiryu, Japan, organized by GUMI Promotion Office and Gunma University. The symposium covered broad areas in Medical Engineering, Applied Materials, Nanotechnologies, Applied Optics, and Analog Circuit Technologies.

Gunma University was established more than fifty years ago from an amalgamation of several educational institutions, including Maebashi Medical College, Kiryu Technical College, Gunma Normal School, and Gunma Youth Normal School. From these institutions, the Faculty of Medicine, the Faculty of Engineering, and the Faculty of Education were formed. Since its inception, the university has striven to foster distinguished physicians, engineers and teachers. Focusing on science and technology, the university has contributed significantly to the development of postwar Japan. The postwar industrial and economic growth of Japan has been steadily declining while neighboring countries appear ready to overtake Japan's lead position. The effects of these changes can be seen in various social phenomena. The university must take its position at the head of our society in order to lead the way toward the construction of a new era. In order to achieve this goal, we need the participation of students who will bear the burdens of a new age.

“Gunma University Medical Innovation (GUMI) Project” was a multi-disciplinary five-year research project started in 2014 with financial support from the Ministry of Education, Culture, Sports, Science and Technology of Japan. A number of researchers belonging to different organizations in Gunma University, such as the Graduate School of Science and Technology, the Graduate School of Medicine, and the University Hospital, are participating in the project. The main goals of the project were to develop new medical instruments, health monitoring devices, diagnostic and Cure medicines, and so on, through tight collaboration among professionals from a variety of fields. Another important mission of the project was to educate young students to be a new type of global engineer who has professional engineering skills as well as an ability to create new prospects comprehensively in the field of medical engineering from a wide variety of knowledge.

The symposium was attended by 185 researchers, and it had 101 presentations including 16 oral presentations (2 invited and 14 regular) and 85 poster presentations. This special issue collects the contributions accepted by two independent referees. We are greatly thankful to all participants of GUMI & AMDE 2018, and we also acknowledge the authors and referees for their contribution to publish this special issue.

Chair of GUMI & AMDE 2018

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