Preface

In order for biomedical TiNi-based alloys to expand their clinical application, continual exploring is crucial. This issue focuses on the latest research of rapidly evolving TiNi-based alloys being conducted in both the academic and medical fields. The proceedings describe the use of artificial biomaterials in medicine as long-functioning systems and implants. The main medical and technical requirements for a new class of upcoming implants are elucidated. Potential studies include new alloy systems, material's functional properties, plasticity, corrosive properties, as well as strength and ductility in addition to materials design and processing techniques to make desired microstructures, shapes, and surfaces. The delay law of biological tissues is correlated with thermodynamic arguments of TiNi-based alloys. New behavioral and structural properties of these materials are continually being discovered.

A large number of articles are devoted to experimental and clinical research of new medical technologies for maxillofacial, plastic, reconstructive, and traumatic surgery, orthopedics and oncology. In particular, a great clinical interest is raised by using a combination of porous parts and superelastic fine meshes made of TiNi-based alloys as so to make easy the management of incurred lesion for oncological surgery. With the articles presented in this issue along with the current advances in TiNi-based alloys research, there is no doubt that these materials will continue to grow in value to the medical world.

The issue is substantially intended for a wide gap of interdisciplinary specialists, who are engaged in research on biomedical shape memory and superelastic alloys.