
Editorial

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Micro and nanomanufacturing of medical materials is a growing area of industrial practice and study. This area is important for producing the next generation of implants such as bone plates, Kirschner wires, Steinmann pins, hip joints, knee joints, bone screws, etc. This special issue addresses a portion of that effort by publishing state-of-the-art papers in the area of advances in micro and nanomanufacturing of medical materials. The papers are focused on the recent advances in the general area of micro and nanomachining practice, machine spindle design, tool design and use that specifically focuses on bone preparation prior to prosthetic implantation, bone cements and the effects of heat treatment on the coatings used on biomedical implants.

The introductory paper details the mathematical analysis of micromachining 316L stainless steel and shows that finite element calculations can indeed predict the temperatures, stresses and strains associated with machining strain hardening metals. The second paper by Li et al. reports on developments concerned with the heat treatment of nano-hydroxyapatite coatings prepared by electrohydrodynamic deposition. A paper by Biggs et al. presents a detailed analysis of PMMA bone cement, whilst the final two papers of the issue focus on diamond tools used to machine compact bone and the development of high speed spindles for machining at the micro scale.

We hope that this special issue will serve as a reference volume consisting of high quality research papers especially for research workers and industrial engineers. Peer reviewers whom are experts in the field of micro and nanomanufacturing have refereed the papers presented in this volume. The referees have been extremely helpful and have returned reviews as per schedule. We wish to thank them for their reviews and the authors for submitting such high quality research papers.