

Special Issue on
Advanced Concepts in Artificial Orthopaedic Implants

CALL FOR PAPERS

The increasing demand for replacing degraded and damaged biological orthopedic tissues with artificial implants is one of the main concerns of orthopedic communities. This necessitates the acceleration of efforts to improve all aspects of orthopedic implants. The design approach, including geometrical features and biomaterials used, plays a critical role in the success of orthopedic implants. We invite articles dealing with development of functional biomaterials such as multimaterials, hierarchical porous structure, and functionalized surface of materials. This along with shape modification can be efficiently accomplished by the utilization of computational approaches, particularly when it is coupled with the use of quality tools. This helps to find an optimum design of implant for prototyping.

We are particularly interested in articles implementing computational tools in design process. The manufacturing approach used to make the implants is also of importance as it influences the structure of the material and consequently the component properties and function. Furthermore, advanced manufacturing techniques in context of computational approaches such as 3D printing facilitate making of implants using multimaterials and/or heterogeneous structure with unique properties. Therefore, this special issue concentrates on advanced concepts in artificial orthopedic implants dealing with innovative biomaterials, novel design, and modern manufacturing. The main objective of the special issue is to provide a forum for exchanging both state-of-the-art and novel ideas for producing improved orthopedic implants.

Potential topics include but are not limited to the following:

- ▶ Computational based development of implants and finite element analysis
- ▶ Advanced biomaterials development for implants
- ▶ Surface functionalization of new materials
- ▶ Modern manufacture of implants including 3D printing
- ▶ Optimization of implant design and manufacturing process
- ▶ Optimization and selection combined with quality tools such as DOE, RSM, and QFD for biomaterials, implant design, and process
- ▶ Implants failure analysis
- ▶ Design of intelligent (sensorized) implants for orthopedics

Authors can submit their manuscripts through the Manuscript Tracking System at <http://mts.hindawi.com/submit/journals/jhe/oidmc/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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