

Guest Editorial for the Special Issue of Journal of Biomechanical Engineering on Medical Devices

I am pleased to have served as the Guest Editor of this Special Issue of Journal of Biomechanical Engineering on Medical Devices. The global medical device market was reported to be a \$169 billion industry in 2002, with the U.S. market alone valued at about \$77 billion. This industry has increased 10-fold in the past decade and has been growing at a rate of 9–10% per year in the past four years. It is expected to grow even more rapidly in the next decade. The medical device industry employs over 350,000 individuals in the U.S. (2001) and created a \$3.3 billion U.S. trade surplus in 2002. Mechanical engineers play a critical role in the conceptualizing, prototyping, testing and manufacturing of these devices. Thus, the objective of this special issue on medical devices is to provide a place to publish results of applied research that reveal solutions to difficult problems faced when moving basic biomedical science/engineering to the bedside. This special issue was associated with the 2005 Design of Medical Devices (DMD) Conference that served as a neutral site where those involved with medical device development came to share emerging technical and clinical issues directed at improving health care around the world.

I would like to thank Frank Yin for his immense help throughout this process, as well as the ASME headquarters staff for their patience. The concept for this issue began with the ASME Publishing department recognizing the growth and popularity of the Design of Mechanical Devices (DMD) Conferences (<http://www.me.umn.edu/dmd>). Philip DiVietro, now Managing Director of Publishing, suggested there might be a need for a technical journal covering the area of medical devices and that perhaps ASME Transactions could be the home for such a journal. This special issue you have before you is a first step to assess author interest and both industry and academia support for this idea.

Forty-seven one-page abstracts were originally submitted for review. Of these, thirty-two were invited to submit full-length papers, and eleven invited to submit technical briefs. As a result of the review process, you will find twelve full-length papers and eleven extended abstracts (some of the original full-length papers have been accepted as abstracts) in the following pages. Ten of these papers were presented at the 2005 DMD Conference, and the number of attendees grew from 407 to 585 since 2004.

I would like to thank the ten special issue Associate Editors for their help in review of all the papers on a very accelerated schedule. The AE's are:

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