
Editorial

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Biographical notes: Ciro A. Rodriguez received his PhD in Industrial Engineering from The Ohio State University in 1997. He is the Director of the Center for Innovation in Design and Technology and leads the Master of Science in Manufacturing Systems programme at Tecnológico de Monterrey, Mexico. The research group in intelligent machines lead by him includes more than 40 researchers, including faculty members, postdoctoral researchers, graduate students, visiting scholars and staff engineers. His current research interests include medical devices prototyping, micro manufacturing and technology innovation.

Joaquim de Ciurana received his PhD in Mechanical Engineering from Universitat Politècnica de Catalunya in 1997. He is Full Professor of Mechanical Engineering and Industrial Construction Department and Director of Product, Process and Production Engineering Research Group (GREP) at Universitat de Girona. His current research interest includes design, production and manufacturing technologies (CIM, CAD, CAM, CNC), flexible manufacturing, improvement of SMEs and system aided process planning. Currently, he is working in process planning and manufacturing processes modelling. He has over 16 years of experience in teaching and researching about manufacturing processes. He has been reviewer and leads several funded research project.

This special issue of the *International Journal of Mechatronics and Manufacturing Systems (IJMMS)* includes five research articles all related to medical devices, considering different points of view, from product design to metrology techniques, including advanced precision manufacturing processes. There is one paper considering medical devices from the design perspective, three papers about how obtain complex shapes for medical devices utilising different precision manufacturing processes such as forming, milling and electro discharge machining (EDM) and one paper about metrology

techniques for orthopaedic device design. A brief summary of the main contributions in each work is discussed below.

In this special issue, the article by Del Vecchio et al. is related to an optical metrology system, composed of a LCD projector, a digital camera and microcomputer to measure a human foot model with three-dimensional results. Del Vecchio et al. investigate how to integrate the system and how to capture reliable geometrical 3D models based on projection moiré technique. Saxler et al. present a new ophthalmic scalpel design as a result of their collaborative work with surgeons. The work conducted by medical doctors and engineers analyses detailed functional requirements for ophthalmic scalpels, including features such as cutting edge sharpness, stability and micro geometry in order to obtain new shapes and solutions. The special issue continues with three articles on precision manufacturing processes for materials relevant in medical device manufacturing. Fiorentino et al. examine surface finishing and treatment when incremental sheet forming process is utilised to produce components for medical devices such as cranial prosthesis with Ti alloys. Vázquez et al. consider micro milling in order to study how process parameters affect the micro features on the workpiece for different materials such as Al alloy, Ti alloy and stainless steel. The results recommend sets of process conditions for each material in order to optimise dimensional accuracy and surface roughness. Finally, the article of Ojha et al. is about the powder mixed electrical discharge machining (PMEDM) process as a precision manufacturing technique and explores material removal rate and tool wear rate for AISI-4140 steel. The article studies performance of PMEDM based on process parameters such as peak current, duty cycle, triangular electrode position and concentration of micro-nickel powder added into dielectric fluid.

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