ASME/IEEE MESA2013 Panel Session on

“**Mechatronics meets fractional calculus: A status update and the future directions**”

(Proposer and Moderator: YangQuan Chen of UC Merced)

Contact info: T: 209-228-4672; Email: yangquan.chen@ucmerced.edu; or yqchen@ieee.org)

**Panel Session Name:**

Mechatronics meets fractional calculus: A status update and the future directions

**Panel Participants and Affiliations:**

Om Agrawal

Dept. of Mechanical Engineering

University of Southern Illinois, Carbondale,

Dumitru Baleano,

Dept. Department of Mathematics and Computer Sciences

Çankaya University, Ankara, Turkey

YangQuan Chen (Moderator)

School of Engineering

University of California, Merced

Tom Hartley

Dept. of Electrical and Computer Engineering

University Of Akron

Malgorzata Klimek,

Head of the Industrial Mathematics Division
Instiute of Mathematics
Vice-Dean for Education
Faculty of Mechanical Engineering and Computer Science
Czestochowa University of Technology
Czestochowa, Poland

Changpin Li

 Dept. of Mathematics

Shanghai University, China

Jiaguo Liu,

School of Mathematics and Statistics,

Shandong University, Weihai, China

 J. A. Tenreiro Machado

 Department of Electrical Engineering

Institute of Engineering of the Polytechnic Institute of Porto, Portugal

**Who Should Attend? (Brief description)**

This panel session is for those who are interested in knowing the latest developments in mechatronics systems modeling and controls that specifically use the tool of fractional calculus, a generalization of traditional (integer-order) calculus. This panel will start by discussing the contributions accepted for the Special Issue on Fractional Order Modelling and Control in Mechatronic Applications of the IFAC Journal of Mechatronics (Elsevier). As mentioned in the CFP, “*The aim of this special issue is to present to the mechatronics research community the usefulness of these tools in a pragmatic context and to stimulate their application. It is in our belief that this special issue will be the milestone of a significant trend in the future of mechatronics. Topics of this special issue include applications of mechanics, electronics, computing, control engineering, molecular engineering (from nanochemistry and biology), and optical engineering, which, combined, make possible the generation of simpler, more economical, reliable and versatile systems.*” Then, the panelists will share their research experience and thoughts on future developments in fractional order mechatronics.

**Desired Panel Day and Time:**

August 5, 6 but not 7. Normal conference session period of 2 hours. As a last resort, evening session is possible such as 7-9PM, similar to a TC meeting event.

**Email list of all panelists:**

'yqchen@ieee.org' (yqchen@ieee.org); jiaguo <sduljg@163.com>; Małgorzata Klimek <malgorzata.klimek@im.pcz.pl>; Om Ag <om@engr.siu.edu>; dumitru@cankaya.edu.tr; thartley@uakron.edu; 'lcp@shu.edu.cn' (lcp@shu.edu.cn); jtm@isep.ipp.pt