— Call for Papers —

A Symposium on

Process-Machine-Interactions (PMI) in Advanced Manufacturing

Sponsored by the ASME Manufacturing Engineering Division's

Manufacturing EquipmentTechnical Committee

2017 ASME International Manufacturing Science and Engineering Conference (MSEC)*

June 4-8, 2017

University of Southern California

Technical Focus

An increasing demand for high quality products and cost-effective processes has driven the development of innovative manufacturing techniques and design of multi-functional production machinery, assisted by intelligent automation. Nevertheless, there is significant potential to enhance efficiency of state-of-the-art manufacturing through interdisciplinary approaches dealing with the interactions of processes and machine tool structures. This symposium reviews recent innovations in the area of process-machine-interactions (PMI) focusing on advanced processes development, high-performance machines, process automation and simulations with emphasis placed on the interaction with the machine tool structures. Specific topics of interest include, but are not limited to:

- *Cutting Tool, Die & Mold Design and Analysis:* Prediction of force, torque, power, vibrations and structural deformations during machining and metal forming operations.
- *Machine Tools and Metal Forming Presses:* Structural and kinematic configurations, new machine tool elements and materials, digital model of production equipment.
- *High Speed Spindles:* Design characteristics of high speed spindles, dynamics and thermal issues.
- *High Performance Feed Drive and CNC Systems:* Design, Control and Optimization of Feed Drives
- *NC Tool-path Generation:* Multi-Axis milling of sculptured surfaces, feature based process planning, planning with vibration avoidance and energy minimization, interpolation and trajectory generation.
- *Virtual Manufacturing:* Simulation of machine tool motions for collision avoidance and energy consumption. Simulation and optimization of material removal/addition by considering process physics, machine tool dynamics and kinematics.
- *Computer Assisted Tool, Die and Mold Design:* Optimal tool design by considering material flow, stress, temperature, wrinkles and rupture of the material during metal forming operations.
- Active Control of Machine Tool Vibrations
- Machine Tool Metrology, Surface metrology, Tolerancing principles
- Diamond-turning, Fast tool servos, Ultra precision machining and Machine tools
- In-situ Measurement of Force, Temperature, Residual stress, Vibration and part dimensions

Contributions from the industry in these areas are particularly encouraged.

Paper Submission

Authors are encouraged to submit an abstract and full manuscript for review by **November 03, 2016** via the conference website. Final revised manuscripts must be submitted by **March 08, 2017**. The copyright transfer form must be filled out and the presenting author must pre-register by April 06, 2017 or the paper will be withdrawn from the conference. Authors may also consult www.asme.org/divisions/med/call/ for updates. ***No papers are to be submitted to the organizers; submissions will only be accepted via the conference website at*** www.asmeconferences.org/msec2017/.

Organizers

Dr. Hongtao Ding, U. of Iowa, Iowa City, IA, USA, Ph: +1-319-335-5674, hongtao-ding@uiowa.edu
Dr. Alexander O'Connor, Boeing, Auburn, WA, USA, Ph:+1-425-234-4294, Email: Alexander.p.o'connor@Boeing.com
Dr. Uttara A. Dani, GE Global Research, NY, USA, Ph: +1-518-387-7208 , Email: Uttara.Dani@ge.com
Dr. Mathew Kuttolamadom, Texas A&M University, College Station, TX, USA, Email: mathew@tamu.edu

* The conference is collocated with NAMRI/SME's 45th North American Manufacturing Research Conference (NAMRC45) and JSME's International Conference on Materials and Processing (ICMP 2017), both of which have a separate call-for-papers. Please note that submissions of the same paper to more than one conference are not permitted.