— Call for Papers —
A Symposium on
Process-Machine-Interactions (PMI) in Advanced Manufacturing

Sponsored by the ASME Manufacturing Engineering Division’s
Manufacturing Equipment Technical Committee
2016 ASME Manufacturing Science and Engineering Conference (MSEC)*
June 27-July 1, 2016
Virginia Tech, Blacksburg, Virginia, USA

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.
- 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 this area are particularly encouraged.

Paper Submission
Authors are encouraged to submit an abstract and full manuscript for review by December 01, 2015 via the conference website. Final manuscripts must be submitted by March 31, 2016. The copyright transfer form must be filled out by March 28, 2016 and the presenting author must pre-register by April 25, 2016 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/msec2016/.

Organizers
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* The conference is collocated with NAMRI/SME’s 44th North American Manufacturing Research Conference (NAMRC44) that will have a separate call-for-papers.