

— 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.
- *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 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/](http://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/](http://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.