



## Call for Papers

### Special Issue on **Enhanced process-machine interaction through design, tooling, automation, and modeling**

Computer numerically-controlled (CNC) manufacturing equipment and tooling has led to automation of processes and significant productivity advances. Demand for high quality products and cost-effective processes continues to grow and has driven the design of new machinery, intelligent tooling, and sophisticated control and automation techniques. However, the efficiency and throughput of modern manufacturing processes still depends on the interaction of the machine with the process. This motivates research in the area of process-machine interaction focusing on design, tooling, automation, and modeling. With this call for papers, manufacturing engineers are invited to showcase their research to a large audience in a special issue of the ASME Journal of Manufacturing Science and Engineering. Specific topics of interest include, but are not limited to:

- Computer-assisted cutting tool and die-mold design and analysis: Prediction of force, torque, power, vibrations, and structural deformations during machining and metal forming operations, and optimal die-mold design considering material flow, stress, temperature, wrinkles, and rupture during metal forming operations
- Machine tools and metal forming presses: Structural and kinematic configurations, new machine tool elements and materials, and digital models 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
- CNC tool-path generation: Multi-axis milling of sculptured surfaces, feature based process planning, vibration avoidance and energy minimization, interpolation, and trajectory generation
- Virtual manufacturing: Simulation/optimization of machine tool motions for collision avoidance and energy consumption, material removal/addition considering process physics, machine tool dynamics, and kinematics
- Active control of machine tool vibrations
- Machine tool metrology, surface metrology, and tolerancing principles
- Diamond turning, fast tool servos, ultra-precision machining, and machine tools
- In-situ measurement of force, temperature, residual stress, vibration, part dimensions, and tool wear.

Manuscripts are due ~~4/1/17~~ **5/1/17**. Publication of the Special Issue is scheduled for **February 2018**.

### **Paper submission**

Papers should be submitted electronically to the Journal at <http://journaltool.asme.org>. If you already have an account, login as author and select **Submit Paper** at the bottom of the page. If you do not have an account, select **Submissions** and follow the steps. In either case, at the **Paper Submittal page**, select the **Journal of Manufacturing Science and Engineering** and then select the special issue **Enhanced Process-Machine Interaction Through Design, Tooling, Automation, and Modeling**.

### **Guest editors**

Prof. Burak Sencer, Oregon State University ([burak.sencer@oregonstate.edu](mailto:burak.sencer@oregonstate.edu))

Prof. Tony Schmitz, University of North Carolina at Charlotte ([tony.schmitz@uncc.edu](mailto:tony.schmitz@uncc.edu))

Dr. Jaydeep Karandikar, GE Global Research Center ([jaydeep.karandikar@ge.com](mailto:jaydeep.karandikar@ge.com))

Dr. Chris Tyler, Boeing ([christopher.tyler@boeing.com](mailto:christopher.tyler@boeing.com))