



# Modern Machine Shop

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# WEBINAR

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**DATE AND TIME OF WEBINAR**

**Thursday,**

**June 19, 2014**

**2:00 PM EST, 11:00 AM PST**

**DURATION: 1 HOUR**

**PRESENTER**



**Dr. Scott Smith**

Professor and Department Chair  
University of North Carolina  
at Charlotte

The International Academy for  
Production Engineering (CIRP) Fellow  
ASME International Fellow

Former Assistant Director for Technology  
at the NIST Advanced Manufacturing  
National Program Office

## Machining Dynamics, Using Science to Optimize High Performance Milling in Your Shop

**EVENT DESCRIPTION**

Knowing where the "good" speeds are and knowing the permissible depths of cut can allow operators to double or triple metal removal rate without any modification of the existing tools, toolholders or the machine. However, nearly every part of the machine structure plays a role. It is the performance of the assembled machining system that counts, not any one piece. There is no general chatter-free tool, no best number of teeth and no best kind of toolholder. There is also no general best machine, spindle interface or spindle speed. Rather, all of the machining system's elements contribute to the stability of the process. While suppliers of machines, tools and toolholders try to optimize their specific products, it is not until the pieces come together at the process that the performance is determined. Some tools and holders match one machine or process better than another. Sometimes, large stable zones correspond to the programmed spindle speeds, but far more often this is not the case. Vibration phenomena are not random, but rather they can be quantitatively measured and described. With the aid of advanced technology, it is now possible to scientifically quantify the vibration characteristics of a milling process, predict chatter, and make recommendations to eliminate it. Without this, machine tool users are guessing, and guessing represents a huge productivity loss. Trial-and-error programming, selection of unproductive cuts, scrap and damage to the machine are the hidden costs of insufficient information. Competitive shops need stability data for all their tools in all their machines.

**WHO SHOULD ATTEND:** Shop Management, CNC programmers, Application Engineers, Tool Crib and Set-Up Personnel

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