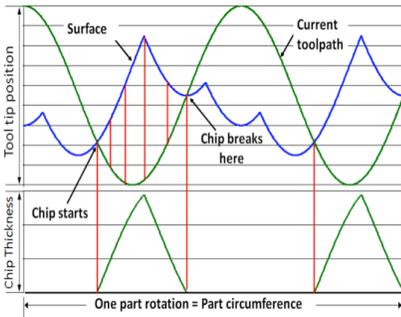
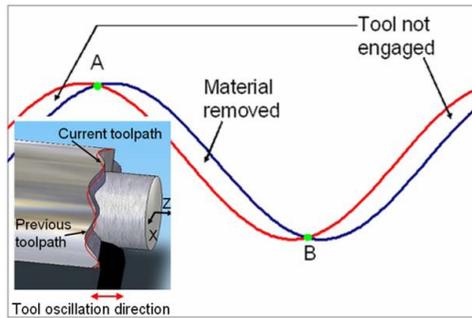


# Modulated Tool Path (MTP) Chatter Suppression System



Exaggerated Representation of MTP Chip Breaking Process

Interaction between the cutting tool and the workpiece cut-face profile that eliminates chatter.



The Modulated Tool Path (MTP) chatter suppression system builds on the general dynamic machine characterization and control capabilities associated with the MTP chip breaking system development. Chatter is caused by the vibration of the machine tool as it encounters previous cutting passes. Through the phase shift of the cutter motion associated with the MTP process, the mechanism that is the basis for the chatter is eliminated.

MATERIALS PROCESSING AND MACHINING

## Features

- Computer modeling and simulation techniques
- No need to reduce feeds or speeds
- Automatic chip breaking

- New and existing machines
- Most machining operations

## Benefits

- Increased production by eliminating the need to reduce feeds or speeds
- Improved quality of the machined surface
- Eliminated down time
- Simplified and less costly chip-processing/recycling
- Decreased product delivery delays
- Reduced cutting tool temperatures
- Reduced part flaws
- Improved workplace safety
- Reduced machine repairs

## Patents & Awards

- U.S. Patent Nos. 8,610,393 and 8,240,234
- U.S. Patent Application No. 12/251,247
- 2010 R&D 100 Award

## Inventors

William Barkman, Ed Babelay and UNC-Charlotte

## Technology Readiness Level (1-9)



Active research and development initiated.

## Partnering Opportunities

Y-12 is seeking an industry partner to fully commercialize this technology.

## Applications

- Turning and boring operations involving a variety of materials

If you would like more information, please contact the Office of Technology Commercialization and Partnerships: [OTCP@y12.doe.gov](mailto:OTCP@y12.doe.gov) (865) 241-5981 <http://www.y12.doe.gov/technologies>