

NSF Industry/University Cooperative Research Center (I/UCRC) on Advanced Cutting Tool Technology (ACTT)

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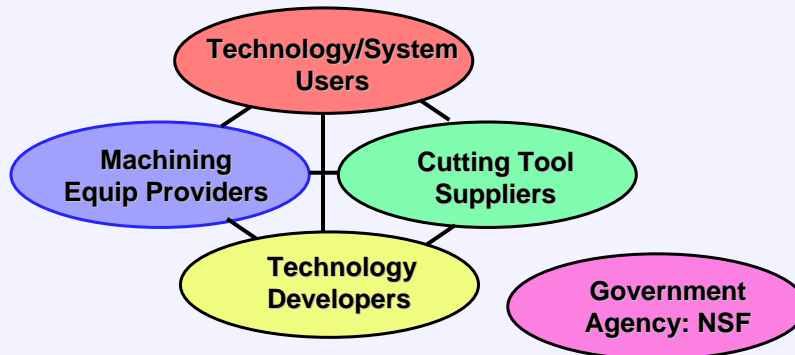
Michigan State University
East Lansing, Michigan



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Center Objectives

Provide a leverage mechanism for machine tool manufacturers, cutting tool suppliers, technology developers, technology/system users, and government agency to work together in addressing existing issues and new challenges.



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Benefits for industry

- For companies to use not only private resources but also federal and state supports to fund high risk technologies
- For companies to utilize leading research universities as their reliable and cost-effective R&D wings
- For companies to receive more technology deliverables with less research investment through financial leveraging
- For companies to develop human resources early by tapping into the pools of the best and brightest minds among university students
- For companies to team up with technology and market partners in a non-competitive environment

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Current Status

- NSF has provided planning grants for MSU & GT.
- The grant has been used to prepare for the establishment of I/UCRC and to sponsor a workshop in which relevant industries were invited.
- The workshop took place on Oct 3 & 4, 2007 at Kellogg Center, in the campus of MSU (East Lansing, MI). The workshop reviewed research capabilities, discussed research agenda, and developed collaboration modes.
- With 11 companies as members, NSF has approved the funding for the single-campus center as of Aug. 15, 2008.
- The first IAB meeting of I/UCRC on ACTT is being held on Oct. 14, 2008.

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Active & Prospective Members

- 1. General Motors (Powertrain)
- 2. Boeing (St. Louis)
- 3. Pratt & Whitney
- 4 . Fraunhofer
- 5. New Ceramic Tech
- 6. UNIST
- 7. Diamond Innovations/Valenite
- 8, 9. Los Alamos National Lab
- 10. Boeing (Seattle)
- Iljin Diamond (Seoul, Korea)
- Fullerton Tool Company
- MacSteel
- General Electric Energy
- General Dynamics
- American Broach
- Die & Mold Consortium
- Naval Research Lab
- Wright-Patterson AFB
- Deform
- Third Wave Systems
- Cummins Engine
- Timkin
- Rolls-Royce
- Delphi
- Detroit Diesel
- Ford
- CAT

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ACTT Faculty Research Team

- **Thomas R. Bieler**, Professor of Chemical Engineering and Materials Science, Michigan State – Titanium alloys
- **Carl Boehlert**, Associate Professor of Chemical Engineering and Material Science, Michigan State - Titanium alloys
- **Lawrence T. Drzal**, Distinguished Professor of Chem. Eng. and Material Science, Michigan State - Nanotechnology
- **Patrick Kwon**, Associate Professor of Mech. Eng., Michigan State – Machining and Cutting Tools
- **Brian Feeny**, Associate Professor of Mech. Eng., Michigan State – Dynamics and Stability
- **Victor Ashtakov**, Professor, Michigan State - Machining
- **Steven Y. Liang**, Morris M. Bryan, Jr. Prof for Advanced Manufacturing Systems, Georgia Tech – Precision Machining
- **Shreyes N. Melkote**, Professor of Mech. Eng., Georgia Tech – Precision Machining

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Yearly Budget

Base Budget

- \$70,000– NSF sponsorship
 - \$15,000 x 11– Michigan State University matching
 - \$30,000 x 11– Industry Membership (each)
- SUB-TOTAL: \$565,000/yr (based on 11 memberships)

Additional Budget

- \$75,000 – NSF I/UCRC Fundamental Research Project
- \$30,000 – NSF TIE-projects with other I/UCRC

SUB-TOTAL: \$105,000/yr

GRAND-TOTAL: \$670,000/yr

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I/UCRC Center Operation

- Each member has one seat on the Industry Advisor Board (IAB) which meets bi-annually.
- The IAB does not include NSF and MSU.
- The Chair of the IAB is self-elected amongst members.
- In IAB meetings, active project deliverables are reviewed and new project proposals presented.
- The continuation of active projects and the initiation of new projects are directly selected by IAB members through voting.
- Each IAB member has 10 voting points total. Each member cast up to 10 points for any project proposal.
- Nominally 7-8 continuing and new projects are funded based on vote ranking, in addition to 1 fundamental research project and 1 TIE projects per NSF approval.

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I/UCRC Intellectual Property

- Intellectual Property developed by the Center shared equally among Center members in accordance with Bayh Doyle Act
- Universities have ownership to all patents coming from inventions conceived/developed in research performed by the Center
- Non-exclusive, royalty-free licenses for industrial Center members
- Possibility of exclusive, royalty-bearing licenses if only one member company seeks a license
- Software developed in the Center can be re-marketed (enhanced or unenhanced) with royalties due to the Center