

CONFERENCE TIME TABLE

All meeting rooms are in the Campus Center,
University of Massachusetts, Amherst.

SUNDAY, MAY 22

Registration and Reception—6:00-8:00 p.m.

MONDAY, MAY 23

Registration 8:00 a.m., Room 165-169
Opening Session 9:00 a.m., Room 101
Morning Break 10:00-10:30 a.m.
Sessions 1, 2 10:30 a.m., Rooms 165-169, 101
Luncheon 12:00-1:30 p.m.
Sessions 3, 4 1:30 p.m., Rooms 165-169, 101
Afternoon Break 3:00-3:30 p.m.
Sessions 5, 6 3:30 p.m., Rooms 165-169, 101
Reception 6:00-7:00 p.m.
Dinner 7:00-9:00 p.m.

TUESDAY, MAY 24

Registration 8:00 a.m., Room 165-169
Sessions 7, 8 8:30 a.m., Rooms 165-169, 101
Morning Break 10:00-10:30 a.m.
Sessions 9, 10 10:30 a.m., Rooms 165-169, 101
Luncheon 12:00-1:30 p.m.
Sessions 11, 12 1:30 p.m., Rooms 165-169, 101
Afternoon Break 3:00-3:30 p.m.
Sessions 13, 14 3:30 p.m., Rooms 165-169, 101
Evening Free

WEDNESDAY, MAY 25

Registration 8:00 a.m., Room 165-169
Sessions 15, 16 8:30 a.m., Rooms 165-169, 101
Morning Break 10:00-10:30 a.m.
Session 17 10:30 a.m., Room 101
Program concludes 12:00 Noon

PROCEEDINGS

Each full-paid registrant attending the Conference will receive a 300-page hard-cover bound copy of the PROCEEDINGS (8½ x 11 inches). Additional copies may be purchased at the time of registration for \$20.00. After May 25, 1977, the PROCEEDINGS will be available from the Society of Manufacturing Engineers, 20501 Ford Road, Dearborn, Michigan 48128.

UNIVERSITY OF MASSACHUSETTS
IN AMHERST

SITE OF THE . . .

FIFTH NORTH AMERICAN METALWORKING RESEARCH CONFERENCE NAMRC-V

MAY 22-25, 1977, AMHERST, MASS.

With the
participation of:



AACIS

REGISTRATION TIME AND LOCATION**SUNDAY, MAY 22, 1977 - 6:00-8:00 p.m.**

Campus Center Lobby
 University of Massachusetts
 Amherst, Massachusetts 01003

MONDAY, MAY 23, 1977 - 8:00 a.m.

Campus Center Room 165-169

TUESDAY/WEDNESDAY, MAY 24, 25, 1977 - 8:00 a.m.

Campus Center Room 165-169

PRE-REGISTRATION

Pre-registration by mail is required before May 6 to assure accommodations. A block of rooms is reserved at the Campus Center Hotel.

Please give your complete mailing address on the pre-registration card. The registration fee is \$150.00. A check for this amount, payable to "NAMRC-V CONFERENCE," should accompany the pre-registration card.

CONFERENCE LOCATION

All sessions will be held in the Campus Center, University of Massachusetts, Amherst. Parking is available in the Campus Center Parking Garage.

TRANSPORTATION

By Air

The nearest airport is Bradley International (Hartford-Springfield) served by all major airlines. An hourly bus service, from the Airport, brings the passengers to the University Campus Center (allow 1½ hours for the journey).

By Road

From the South: Exit from Interstate 91 at the Route 9 Hadley/Amherst exit. Follow signs to Amherst, then look for signs to the University of Massachusetts.

From the North: Exit from Interstate 91 at the sign to Amherst. Follow Route 116 to Amherst, then follow signs to the University of Massachusetts.

From the West: Take Interstate 90 (Massachusetts Turnpike) to Interstate 91 Northbound. Follow directions for approaching from the South.

From the East: Take the Massachusetts Turnpike to the Palmer Exit (Exit 8). Follow signs to Amherst via Belchertown (Routes 181 and 9), then look for signs to the University of Massachusetts. Alternatively, take Route 2 West, then Route 202 South to Pelham. Turn right to Amherst and look for signs to the University of Massachusetts.

PARKING FACILITIES

Parking is available at reasonable rates at the Campus Center Parking Garage. Park on Level 2 and walk through to the Campus Center.

FOR FURTHER INFORMATION, PLEASE CONTACT

Dr. G. Boothroyd, Department of Mechanical Engineering,
 University of Massachusetts, Amherst, Massachusetts 01003
 Telephone (413) 545-2253

REGISTRATION FEES

	Participant	Ladies Program
Full Conference	\$150	\$50
Monday or Tuesday only	\$100	\$25
Wednesday only	\$80	

The fees include participation at the sessions, breakfast on Monday, Tuesday, and Wednesday, refreshment breaks, lunches on Monday and Tuesday, Conference dinner on Monday, and one copy of the NAMRC-V PROCEEDINGS. Additional copies of the NAMRC-V PROCEEDINGS will be available at the Conference for \$20.00 per copy. The fees do not include accommodations, lunch on Wednesday or dinner on Sunday or Tuesday.

Your pre-registration must be received no later than May 6 and should be confirmed prior to attending the program. This is necessary because the accommodation space in the Campus Center Hotel is strictly limited. Space may be reserved by individuals who are required to obtain employer authorization. Companies may place reservations and send names of attendees at a later date.

TAX DEDUCTION OF EXPENSES: *An income tax deduction is allowed for expenses of education (including registration fees, travel, meals, lodging) undertaken to maintain and improve professional skills (see Treas. Reg. 1.162-5).*

LADIES PROGRAM

An interesting ladies program is being planned for those not participating in the technical sessions. The program will include a full day visit to Sturbridge Village, a completely restored New England Village where inhabitants work and live as they did many years ago, a visit to the famous Clarke School for the Deaf to see classes being taught, and, hopefully, a visit to the Emily Dickinson House. Since bus and other facilities must be booked in advance of the meeting, we will greatly appreciate early registration so that we may properly plan these events. If you will be accompanied by someone interested in this program, please check the appropriate box on the registration form.

CONFERENCE SPONSORS

Department of Mechanical Engineering,
 University of Massachusetts, Amherst,
 Massachusetts in conjunction with

- American Society of Mechanical Engineers
- Canadian Society of Mechanical Engineers
- National Science Foundation, RANN Program
- Society of Manufacturing Engineers
- Association of American CIRP Industrial Sponsors

**CONFERENCE PRESTIGES**

The Fifth North American Metalworking Research Conference (NAMRC-V) has, as its purpose and scope, the presentation and discussion of the results of basic and applied metalworking research. The format of the Conference is similar to NAMRC-I held at McMaster University in 1973, NAMRC-II held at the University of Wisconsin in 1974, NAMRC-III held at Carnegie-Mellon University in 1975, and NAMRC-IV held at Battelle Columbus Laboratories and Ohio State University in 1976.

The papers presented at this Conference will describe work in the fields of metal forming, metal removal, and machine tools and manufacturing systems.

All papers, presented at the Conference, are contained in the Conference PROCEEDINGS which will form part of a special issue of the SME Manufacturing Engineering Transactions, and represent the work conducted in many renowned metalworking research centers in North America, Europe, and Japan.

CONFERENCE ORGANIZATION

The North American Metalworking Conferences have been created by a group in North America dedicated to furthering knowledge, its dissemination and application in the field of materials processing.

The papers presented at this Conference were selected by the Scientific Committee of NAMRC from a large number of submissions. All Conference arrangements were made by the NAMRC-V Organizing Committee.

SCIENTIFIC COMMITTEE

J. Bollinger University of Wisconsin	S. Ramalingam State University of New York
L. Colwell University of Michigan	W. Rice, CHAIRMAN Queen's University
N. Cook Massachusetts Institute of Technology	J. Schey University of Waterloo
D. French Waterloo University	M. Shaw Carnegie-Mellon University
J. Frisch University of California	J. Tlusty McMaster University
I. Ham Pennsylvania State University	B. von Turkovich University of Vermont
S. Kobayashi University of California	S. Wu University of Wisconsin
I. LeMay (on leave) University of Saskatchewan	

ORGANIZING COMMITTEE

G. Boothroyd, CHAIRMAN University of Massachusetts	J. Watson Canadian Society of Mechanical Engineers
B. Chern National Science Foundation	A. Welch Association of American CIRP Industrial Sponsors
M. DeVries American Society of Mechanical Engineers	C.R. Poli University of Massachusetts
L.E. Murch University of Massachusetts	W.R.D. Wilson University of Massachusetts
R.S. Hahn Society of Manufacturing Engineers	

FIFTH NORTH AMERICAN METALWORKING RESEARCH CONFERENCE

Department of Mechanical Engineering UNIVERSITY OF MASSACHUSETTS

SUNDAY, MAY 22, 1977

6:00-8:00 p.m. Registration, Campus Center Lobby

MONDAY, May 23, 1977

8:00 a.m. Registration, Campus Center Room 165

OPENING SESSION 9:00 a.m. Campus Center Room 101

CHAIRMAN

William B. Rice, *Chairman*, Scientific Committee, NAMRC-V and Head, Mechanical Engineering Department, Queen's University, Kingston, Ontario

SPEAKERS

Words of Welcome, Russell Jones, Dean of the School of Engineering, University of Massachusetts
Introductory Remarks, William B. Rice
Announcements, Geoffrey Boothroyd, Department of Mechanical Engineering, University of Massachusetts

COFFEE BREAK 10:00-10:30 a.m.

SESSION 1 10:30 a.m., Campus Center Room 165-169

CO-CHAIRMEN

W.B. Rice, Queen's University, Kingston, Ontario
M.L. Davenpeck, U.S. Steel Corporation, Monroeville, Pennsylvania

AUTHORS

"*Slip Line Solutions for Strip Drawing with Arbitrary Frictional Conditions*", W.R.D. Wilson, University of Massachusetts, Amherst, Massachusetts
"Some Aspects of Finite-Element Analysis of Plastic Compression", H. Takahashi, Yamagata University, Japan, S. Kobayashi, University of California, Berkeley, California.

SESSION 2 10:30 a.m., Campus Center Room 101

CO-CHAIRMEN

B. Chern, National Science Foundation, Washington, D.C.
J.G. Bollinger, University of Wisconsin, Madison, Wisconsin.

AUTHORS

"*The Development of a Scheme for On-Line Tool Wear Sensing*", J.I. Elgomayel, Purdue University, West Lafayette, Indiana, A.A. Zakaria, John Deere Company, Moline, Illinois.
"Development of Automated Manufacturing Systems", W. Eversheim, E. Westkamper, Technical University, Aachen, West Germany.
"Adaptive Machining Parameter Selection", N.H. Cook, Massachusetts Institute of Technology, Cambridge, Massachusetts.

LUNCHEON 12:00-1:30 p.m.

SESSION 3 1:30 p.m., Campus Center Room 165-169

CO-CHAIRMEN

A.T. Male, Westinghouse Electric Corporation, Pittsburgh, Pennsylvania
T. Altan, Battelle Columbus Laboratories, Columbus, Ohio.

AUTHORS

"An Upper Bound Analysis of Various Tube Forming Operations", C.S. Hartley, University of Florida, Gainesville, Florida.
"Metal Flow Through Various Mathematically Contoured Extrusion Dies", E. Mata-Pietri, Universidad del Zulia, Maracaibo, Venezuela, J. Frisch, University of California, Berkeley, California.

SESSION 4 1:30 p.m., Campus Center Room 101

CO-CHAIRMEN

M. Field, Metcut Research Associates, Cincinnati, Ohio.
C.H. Kahng, Michigan Technological University, Houghton, Michigan.

AUTHORS

"*Tool Life Scatter, Tooling Costs and Replacement Schedules*", S. Ramalingam, N. Balasubramanian, Y. Peng, State University of New York, Buffalo, New York.
"Analysis of Machining Operations by the Dynamic Data System Approach", S.M. Wu, M.F. DeVries, University of Wisconsin, Madison, Wisconsin, W.R. DeVries, University of Michigan, Ann Arbor, Michigan.
"Interactions Between Technology and Economics in Fine-Hole Drilling by EDM", J.R. Crookall, Cranfield Institute of Technology, Bedford, England.

COFFEE BREAK 3:00-3:30 p.m.

SESSION 5 3:30 p.m., Campus Center Room 165-169

CO-CHAIRMEN

B.I. Bachrach, Ford Motor Company, Detroit, Michigan.
A.S. Weinstein, Carnegie-Mellon University, Pittsburgh, Pennsylvania.

AUTHORS

"The Influence of Interfacial Shear Yield Strength on the Deformation Mechanics of an Axi-Symmetric Two Component System", R. Lugosi, Westinghouse Research and Development Center, Pittsburgh, Pennsylvania, C.S. Hartley, University of Florida, Gainesville, Florida, A.T. Male, Westinghouse Research and Development Center, Pittsburgh, Pennsylvania.
"Metal Flow in Plane-Strain Closed Die Forging", N.I. Lyapunov, Moscow Bauman Higher College, Moscow, U.S.S.R., S. Kobayashi, University of California, Berkeley, California.

SESSION 6 3:30 p.m., Campus Center Room 101

CO-CHAIRMEN

N.H. Cook, Massachusetts Institute of Technology, Cambridge, Massachusetts
K.K. Wang, Cornell University, Ithaca, New York.

AUTHORS

"Evaluating and Simulating Form Errors of Cylindrical Parts", A.A. Elgabry, L. Kops, McGill University, Montreal, Quebec, Canada.
"Orientation of Parts on the Track of a Vibratory Bowl Feeder", C. Ho, G. Boothroyd, University of Massachusetts, Amherst, Massachusetts.
"The Role of Machining Tolerances in Transfer Line Technology", D.S. Ermer, S.M. Wu, University of Wisconsin, Madison, Wisconsin.

CONFERENCE DINNER

Cocktails (cash bar) 6:00-7:00 p.m., Campus Center
Dinner and Program—7:00-9:00 p.m., Campus Center

TUESDAY, MAY 24, 1977

SESSION 7 8:30 a.m., Campus Center Room 165-169

CO-CHAIRMEN

S.K. Samanta, Samanta Metal-Forming Corporation, Taylor, Michigan.
J.R. Douglas, Germont American Corporation, Louisville, Kentucky.

AUTHORS

"Large Tube Production by Radial Extrusion", D.W. Rowell, Cable Consultants Corporation, Larchmont, New York.
"Design of Tooling and Equipment for Forming Radial Geometries on Pipe", G.B. Balasubramanian, J.M. Szwed, The Pennsylvania State University, University Park, Pennsylvania.

AUTHORS

"Investigation on the Optimal Machining Conditions for Electro-Discharge Machining of Cemented Carbides", H. Cornelissen, R. Snoeys, J.P. Kruth, Catholic University, Leuven, Belgium.
"The Creation of Alignment in Structures Using Electro-Discharge Machining", J.R. Crookall, Cranfield Institute of Technology, Bedford, England.

COFFEE BREAK 3:00-3:30 p.m.

SESSION 13 3:30 p.m., Campus Center Room 165-169

CO-CHAIRMEN

L. Luzzi, Watervliet Arsenal, Watervliet, New York
W.R.D. Wilson, University of Massachusetts, Amherst, Massachusetts

AUTHORS

"Comparative Analyses of Extrusion Dies for Cold Heading Production", B. Avitzur, Lehigh University, Bethlehem, Pennsylvania, P.F. Gordon, Frankford Arsenal, Philadelphia, Pennsylvania, R.P. McDermott, Michigan Screw Products, Center Line, Michigan.
"Mechanics of Hot Nosing of Shell", R. Karpp, Los Alamos Scientific Laboratories, Los Alamos, New Mexico, P. Gordon, F.M. Lee, Frankford Arsenal, Philadelphia, Pennsylvania.
"Temperature Distribution in Inductively Heated Tubular Components Prior to End Forming", T.L. Subramanian, G.D. Lahoti, T. Altan, Battelle Columbus Laboratories, Columbus, Ohio.

SESSION 14 3:30 p.m., Campus Center Room 101

CO-CHAIRMEN

R.S. Hahn, Cincinnati Milacron-Heald, Worcester, Massachusetts
J.R. Mansperger, Warner and Swasey Company, Solon, Ohio

AUTHORS

"A Contribution to Grinding with Cubic Boron Nitride", H.K. Tonshoff, G. Warnecke, G. Gelselwed, B. Jurgenhake, Technical University, Hannover, West Germany.
"Comparison of Single Point and Rotary Dressing of Grinding Wheels", S. Malkin, Israel Institute of Technology, Haifa, Israel, T. Murray, State University of New York, Buffalo, New York.
"Determination of Optimum Machining Conditions in Cylindrical Plunge Grinding", K. Iwata, Kobe University, Kobe, Japan, K. Takazawa, Y. Yamamoto, M. Horike, Tokyo Shibaura Electric Company, Ltd., Kawasaki, Japan.

EVENING FREE

WEDNESDAY, MAY 25, 1977

SESSION 15 8:30 a.m., Campus Center Room 165-169

CO-CHAIRMEN

S. Jain, Wyman Gordon Company, Worcester, Massachusetts
J.W. Spretack, Ohio State University, Columbus, Ohio

AUTHORS

"Internal Profile Forming by Rotary Swaging", S. Kaipakjian, Illinois Institute of Technology, Chicago, Illinois.
"Computer-Aided Preform Design for Precision Isothermal Forging", T.L. Subramanian, N. Akgerman, T. Altan, Battelle Columbus Laboratories, Columbus, Ohio.
"Computer Analysis of Progressive Deformation in Extrusion-Forming", G.W. Rowe, P. Hartley, University of Birmingham, England.

SESSION 16 8:30 a.m., Campus Center Room 101

AUTHORS

"Evaluating and Simulating Form Errors of Cylindrical Parts"; A.A. Elgabry, L. Kops, McGill University, Montreal, Quebec, Canada.
 "Orientation of Parts on the Track of a Vibratory Bowl Feeder"; C. Ho, G. Boothroyd, University of Massachusetts, Amherst, Massachusetts.
 "The Role of Machining Tolerances in Transfer Line Technology"; D.S. Ermer, S.M. Wu, University of Wisconsin, Madison, Wisconsin.

CONFERENCE DINNER

Cocktails (cash bar) 6:00-7:00 p.m., Campus Center
 Dinner and Program—7:00-9:00 p.m., Campus Center

TUESDAY, MAY 24, 1977**SESSION 7 8:30 a.m., Campus Center Room 165-169****CO-CHAIRMEN**

S.K. Samanta, Samanta Metal-Forming Corporation, Taylor, Michigan.
 J.R. Douglas, 6ermont American Corporation, Louisville, Kentucky.

AUTHORS

"Large Tube Production by Radial Extrusion"; D.W. Rowell, Cable Consultants Corporation, Larchmont, New York.
 "Design of Tooling and Equipment for Forming Radial Geometries on Pipe Products"; C.R. Beiswenger, J.M. Samuels, The Pennsylvania State University, University Park, Pennsylvania. A.R. Bobrowsky, Pressure Technology Corporation, Boalsburg, Pennsylvania.
 "Wire Reinforced Honeycomb Structures"; A.J. Gomez-Fermin, J.T. Berry, Georgia Institute of Technology, Atlanta, Georgia.

SESSION 8 8:30 a.m., Campus Center Room 101**CO-CHAIRMEN**

K.J. Weinmann, Michigan Technological University, Houghton, Michigan
 B.F. von Turkovich, University of Vermont, Burlington, Vermont

AUTHORS

"A New Method of Visualizing the Cutting Process"; G. Warnecke, Technical University, Hannover, West Germany.
 "Direct Observation of the Chip/Tool Interface in Metal Cutting"; J.G. Horne, E.D. Doyle, D. Tabor, Cavendish Laboratory, Cambridge, England.
 "The Design of Integral Elastic Hinges"; A. Zompi, G. Murari, R. Levi, Istituto di Tecnologia Meccanica, Politecnico di Torino, Torino, Italy.

COFFEE BREAK 10:00-10:30 a.m.**SESSION 9 10:30 a.m., Campus Center Room 165-169****CO-CHAIRMEN**

F.W. Boulger, Battelle Columbus Laboratories, Columbus, Ohio
 F.J. Gurney, Westinghouse Astronuclear Laboratory, Wright-Patterson Air Force Base, Ohio

AUTHORS

"A Direct Method for Obtaining an Effective Stress-Strain Curve from a Tension Test"; E.G. Thomsen, University of California, Berkeley, California.
 A.H. Shabaik, University of California, Los Angeles, California. S. Sohrabpour, Pahlavi University, Shiraz, Iran.
 "Analytical Simulation of Material Behavior for Sheet Metal Forming"; J.F. Thomas, Jr., Wright State University, Dayton, Ohio. H.L. Gegel, L.J. Teutonico, Wright-Patterson Air Force Base, Ohio.

SESSION 10 10:30 a.m., Campus Center Room 101**CO-CHAIRMEN**

M.F. DeVries, University of Wisconsin, Madison, Wisconsin.
 D.T. Koenig, General Electric Company, Schenectady, New York

AUTHORS

"Energy Conversion in Metal Cutting"; B.F. von Turkovich, University of Vermont, Burlington, Vermont.
 "The Effect of Changing the Thermal Conductivity of Metal Cutting Tools on Their Wear"; C.J. Kotval, Bendix Research Laboratories, Southfield, Michigan. M.M. Barash, Purdue University, West Lafayette, Indiana.
 "Basic Investigation on the Grooving Wear Formation at the Minor Cutting Edge"; T. Ono, H. Takeyama, Mechanical Engineering Laboratory, Tokyo, Japan.

LUNCHEON 12:00-1:30 p.m.**SESSION 11 1:30 p.m., Campus Center Room 165-169****CO-CHAIRMEN**

R.J. Fiorentino, Battelle Columbus Laboratories, Columbus, Ohio
 G.E. Dieter, Carnegie-Mellon University, Pittsburgh, Pennsylvania

AUTHORS

"Control of the Formation of Martensite During Drawing of Hollow Shaped Components from Austenitic Stainless Steels"; K. Lange, Universitat Stuttgart, Stuttgart, West Germany. R. Zeller, Robert Bosch GmbH, Stuttgart, West Germany.
 "Adiabatic Viscoplastic Deformation at High Strain Rate and High Strain of Some Usual Metals"; T. Vinh, M. Afzali, J.C. Fabre, Laboratoire de Rheologie, I.S.M.C.M., Saint-Ouen, France.
 "An Experimental Investigation of the Entrainment of Solid Lubricant Coatings in a Strip Drawing Process"; K. Halliday, University of Texas, Arlington, Texas. W.R.D. Wilson, University of Massachusetts, Amherst, Massachusetts.

SESSION 12 1:30 p.m., Campus Center Room 101**CO-CHAIRMEN**

M.M. Barash, Purdue University, West Lafayette, Indiana
 E.E. Miller, Western Electric Company, Winston Salem, North Carolina

sity of New York, Buffalo, New York.

"Determination of Optimum Machining Conditions in Cylindrical Plunge Grinding"; K. Iwata, Kobe University, Kobe, Japan. K. Takazawa, Y. Yamamoto, M. Horike, Tokyo Shibaura Electric Company, Ltd., Kawasaki, Japan.

EVENING FREE**WEDNESDAY, MAY 25, 1977****SESSION 15 8:30 a.m., Campus Center Room 165-169****CO-CHAIRMEN**

S. Jain, Wyman Gordon Company, Worcester, Massachusetts
 J.W. Spretnack, Ohio State University, Columbus, Ohio

AUTHORS

"Internal Profile Forming by Rotary Swaging"; S. Kalpakjian, Illinois Institute of Technology, Chicago, Illinois.
 "Computer-Aided Preform Design for Precision Isothermal Forging"; T... Subramanian, N. Akgerman, T. Altan, Battelle Columbus Laboratories, Columbus, Ohio.
 "Computer Analysis of Progressive Deformation in Extrusion-Forming"; G.W. Rowe, P. Hartley, University of Birmingham, England.

SESSION 16 8:30 a.m., Campus Center Room 101**CO-CHAIRMEN**

J.E. Mayer, Jr., Ford Motor Company, Dearborn, Michigan
 V.A. Tipnis, Metcut Research Associates, Cincinnati, Ohio

AUTHORS

"Considerations in the Design of Free Machining Steels"; S. Ramalingam, State University of New York, Buffalo, New York. J.D. Watson, B.H.P. Melbourne Research Laboratories, Victoria, Australia.
 "Enhancement of High Speed Steel Tool Life by Titanium Nitride Sputter Coating"; K.Y. Su, N.H. Cook, Massachusetts Institute of Technology, Cambridge, Massachusetts.
 "Microstructural Aspects of Friability in Abrasives"; E.D. Whitney, University of Florida, Gainesville, Florida. R.E. Shepler, Union Carbide Corporation, Cleveland, Ohio.

COFFEE BREAK 10:00-10:30 a.m.**SESSION 17 10:30 a.m., Campus Center Room 101****CO-CHAIRMEN**

J. Tlustý, McMaster University, Hamilton, Ontario
 L.V. Colwell, University of Michigan, Ann Arbor, Michigan

AUTHORS

"Self Compensation of Machine Tool Deflections with Negative Stiffness Structural Elements"; P.S. Chaudhuri, Westvaco Corporation, Covington, Virginia. J.G. Bollinger, N.H. Beachley, University of Wisconsin, Madison, Wisconsin.
 "Effect of the Minimum Vibration Face-Milling Cutter on the Surface Finish of the Workpiece"; F.A. Burney, S.G. Kapoor, S.M. Wu, University of Wisconsin, Madison, Wisconsin.
 "Chip Formation in Machining with Self-Propelled Rotary Cutting Tools"; A.A. Radwan, Y.H. Kabli, Cairo University, Egypt.

CONFERENCE ADJOURNED 12:00 Noon

Involvement of U.Wis Staff
 or Alumni