CIRP NEWSLETTER

edited by the Technical Secretary M.Santochi

N° 9 - October 1996

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from the Editor

Dear Colleagues

I wish to inform you the next issue of the CIRP Newsletter is scheduled for

April 1997.

All your contributions are welcome and will be considered for publication. For a fast and easy transmission of documents, you are invited to use the E-mail at the following adress :

santochi@itm.unipi.it

Please consider that the deadline for your contribution is

March 15th 1997.

The Technical Secretary
Prof. Marco Santochi

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awards

It is a pleasure to announce that our colleague, Professor Jack Peters, Honorary Member and President of our College in 1972/73, has been nominated a member of the Polish Academy of Engineering. He is the first foreign member of the Academy. The nomination has been handed to Professor Peters on May 14 1996, in Warsaw, at the solemn meeting of the Board of the Polish Academy of Engineering, in the presence of the Councilor of the Belgian Embassy and our colleagues Jan Kaczmarek and Maciej Szafarczyk.

It is a pleasure to announce that our Colleague Professor M.C. Shaw, Honorary Member and President of our College in 1960/61, received the degree Dr. of Eng., h.c. at the commencment at Drexel University on June 16, 1996 at Philadelphia, Pennsylvania, USA. The citation was as follows:
"For his extraordinary talents in teaching and research, for His contribution to the field of mechanical engineering, and for the honor his accomplishments have brought to his alma mater, Drexel University is peased to recognize Milton C. Shaw, conferring upon him the degree Doctor of Engineering, honoris causa".

It is a pleasure to announce that our Colleague, Professor Pat McKeown, Honorary Member and President of our College in 1988/89, who is now Professor Emeritus at Cranfield University, UK, was awarded an Honorary Doctor of Science Degree by the University of Connecticut, USA, on 19 May 1996. The citation included the following statement:
"Precision manufacturing has always held a special place in Connecticut's history and culture. From revolvers and sewing machines to aircraft engines, space suits and custom tools, the state has provided cutting-edge manufacturing for more than two centuries. It is in this tradition that we honor Patrick A. McKeown, one of the world's foremost innovators and experts in the field of high precision manufacturing."
On 14 June 1996, his own University at Cranfield, UK, also awarded him a Doctor of Science honoris causa in recognition of "his distinguished contribution to manufacturing and precision engineering".

It is a pleasure to announce that our Colleague Dr. Ing. Horst Kunzmann of Brauschweig, Germany, has been selected by the Society of Manufacturing Engineers (SME) to receive the 1996 SME Frederick W. Taylor Research Medal. He is one of six leaders in manufacturing engineering, management, education, and research who was honoured with an SME 1996 International Honor Awards or Honorary Membership June 8 at the Hyatt Regency Minneapolis, Minn.
The SME Frederick W. Taylor Research Medal is awarded for published research leading to a better understanding of materials, facilities, principles, and operations, and their application to improve manufacturing processes.
Dr. Kunzmann is director and professor at the Physikalisch-Technische Bundestalt (PTB) and head of the Precision Engineering Division of the PTB, which is the German equivalent of the (former) National Bureau of Standards, now NIST.
He is world-class manufacturing engineer, researcher, and administrator whose contributions in manufacturing are very significant, long-lasting, and worthy of recognition. In engineering metrology and high precision manufacturing processes, he contributed to several measuring technologies including laser interferometers as the world's practical standard of length of dimensional measurement.
He is a pioneer of modern engineering metrology, the underlying basis of much of modern manufacturing. The outstanding quality of his research covers both theoretical work and practical applications .
As the first person in the world to recognize the potential of the laser as a standard of lenght, he overcame opposition at the PTB to have the first paper published on the topic. As its director, he built the manufacturing metrology division of PTB into a world-class organization of high renown.
Dr. Kunzmann made very significant research contributions to understanding and compensating for the effects of temperature on machine tools and measuring equipment, and is one of the most internationally-respected experts in the field.
He also has a leadership role in Institute and governmental committees and national and international scientific and technical organizations, including CIRP.

It is a pleasure to announce that our Colleague Dr. Stephen Malkin of Amherst, Mass., has been selected by the Society of Manufacturing Engineers (SME) to receive the 1996 SME Gold Medal. He is one of six leaders in manufacturing engineering, management, education, and research who was honored with an SME 1996 International Honor Award or Honorary Membership June 8 at the Hyatt Regency Minneapolis, Minn.

The SME Gold Medal is awarded for providing insight and understanding about important manufacturing issues to practitioners or to the general public.

Dr. Malkin is professor of Mechanical and Industrial Engineering at the University of Massachussetts, Amherst, Mass. He is internationally recognized for research on machining and grinding processes and for technical contributions enhancing productivity and part quality. His book, Grinding Technology : Theory and Applications of Machning with Abrasives, describes the current state of the art.

Dr. Malkin's research activities have been mostly related to manufacturing and tribology. At the University of Massachussetts, he developed a broad-based research program on grinding fundamentals and applications with funding from government and industry. An author of more than 150 technical papers and a book on grinding, he is internationally recognized for research on grinding and abrasive processes.

He professional experience encompasses extensive industrial consulting with more than 25 companies in the United States and Europe. Much of his consulting has been concerned with implementations of methods maximizing grinding efficiency. He has also assisted manufacturing industries to efficiently use machining process and to solve production and quality control problems arising in abrasive processing of metallic, ceramic, polymeric, and cemented carbide components.

Dr. Malkin is an SME Fellow as well as a fellow of the American Society of Mechanical Engineers (ASME), a past member of the Machining Technology Association of SME (MTA/SME), and the International Institution of Production Engineering Research (CIRP). In 1993, he received the ASME Blackall Award for best papers related to machine tools. Dr. Malkin is an active member of the North America Manufacturing Research Institute of SME (NAMRI/SME).

Dr. Malkin has a doctorate and bachelor's and master's degree in mechanical engineering from the Massachussets Institute of Technology.

It is a pleasure to announce that our Colleague Dr. Ioan D. Marinescu was recently appointed as Director of the Abrasive Micro-Machining Center, a Center of Excellence in the USA, at Kansas State University.

During the International Manufacturing Engineering Conference (IMEC'96) the Board Meeting of the International Foundation for Production Research - Americas Region (IFPR - AR) reelected Dr. Ioan D. Marinescu the chairman of IFPR - AR and the U.S. representative at IFPR.

IFPR is an international organization about 25 years old. The main activity of this organisation is to organize the International Conference for Production Research (ICPR) every two years. In the last years IFPR has become more active in organizing regional conferences, technical committees and cooperative projects .

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meetings, seminars, conferences

29 th CIRP International Seminar on
Manufacturing Systems
May 11/13, 1997 Osaka University, Japan

New Manufacturing Era
- Adaption to Environment, Culture, Intelligence and Complexity -

Topics :
Next generation manufacturing systems
Global manufacturing
Multimedia for extended enterprise
Intelligent control and sensor fusion
Intelligent machines and robots
Proficient machines and systems
Manufacturing process modeling and simulation
Autonomous and distributed architecture
Dynamic scheduling for complex manufacturing
Complexity management and control in manufacturing
Neural networks, genetic algorithms and artificial life approaches
Evolutionary and emergent computation for manufacturing
Environment - conscious manufacturing
Product life cycle management
Customer driven production
Cultural aspects in manufacturing
Any other topics related to the Seminar's Theme.

Deadlines
abstracts : October 1, 1996
full papers : January 15, 1997

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Rokkodai, Nada-ki, Kobe 657, JAPAN
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5th CIRP International Seminar on
Computer -Aided Tolerancing
Toronto, Ontario Canada
April 27/29 1997
Topics :
¡ Tolerance theory and standards
¡ Tolerance representation in CAD
¡ Tolerance stacking and modelling of geometric errors
¡ Tolerance analysis and synthesis
¡ Robust design and tolerances
¡ Applications of tolerancing in CAD/CAM/CAPP
¡ Design theory and relation with tolerancing
¡ Computer aided tolerancing (CAT) systems
¡ GD&T teaching and education
¡ Industrial applications and implementation
¡ Metrology / inspection
¡ Applications in industry.

Deadlines
September 1, 1996 Abstract
January 15, 1996 Camera-ready papers.

Dr. Hoda ElMaraghy
Dean, faculty of Engineering University of Windsor
401 Sunset Avenue Windsor, Ontario N9B 3P4 CANADA
Tel : 5192534232 ext. 3439
Fax : 5199737053
E-mail cirp@ims.uwindsor.ca

Seminar's WWW Home Page adress : http:www.ims.uwindsor.ca/~cirp/

30th CIRP Seminar on
Manufacturing systems
Lane'97
Laser assisted Net shape Engineering
Sept. 24-26, 1997
Erlangen, Germany

Topics :
¡ Laser techniques
¡ ablative methods (e.g. laser caving, laser clearing)
¡ forming methods (e.g. laser forming)
¡ generative methods (e.g. laser sintering, stereolithography)
¡ joining (e.e. strategies for reduction of distortion in welding
¡ combined methods (e.g. tailored blanks, process chains)
¡ integrated methods (e.g. laser integration into or as support for conventional
¡ processes like millinng or etching)

Deadlines
Submission of abstract Dec. 15, 1996
Full paper May. 30, 1997

LANE '97
F. Vollertsen
Egerlandstr, 11 D-91058 Erlangen Germany
Tel : ++49/9131/858286 or 7141
Fax : ++49/913136403
e-mail : fv@terra.ift.uni-erlangen.de

CIRP International Symposium
ADVANCED DESIGN AND MANUFACTURE IN THE GLOBAL MANUFACTURING ERA
August 21/21, 1997
Hong Kong

Topics :
¡ Global Manufacturing
¡ Advanced Manufacturing Technologies
¡ Concurrent/Simultaneous Engineering
¡ Production Management
¡ Computer - Integrated Manufacturing
¡ Intelligent Automation

Deadlines
Submission of extended abstract : Nov. 1, 1996
Submission of manuscript and deadline for registration : Mar. 1, 1997

Dr. K.L. Mark
CIRP International Symposium '97
Dept. of Industrial and Manufacturing Systems Engineering
The University of Hong Kong
Pokfulam Road Hong Kong
Tel : 85228592582
Fax 85228586535
E-mail : syimsmak@hkucc.hku.hk

9 IPES - UME 4
INTERNATIONAL PRECISION ENGINEERING SEMINAR
INTERNATIONAL CONFERENCE ON ULTRAPRECISION IN MANUFACTURING ENGINEERING

The interdisciplinary forum for leading precision engineers and nanotechnologists

26-30 May 1997
Braunschweig Germany

Topics:

Nano and micro metrology
The metrology of precision machines
High precision machines
Machines and instruments
Ultra precision and microfabrication processes
Nano and micro engineered products
New developments in precision engineering.

Deadline
abstracts : 25 October 1996

Further information
Physikalisch-Technische Bundesanstalt (PTB)
Secretariat IPES/UME
Bundesallee 100
D-38116 Braunschweig Germany
Tel : +495315925301
Fax: +495315925305
E-mail : IPES-UME@ptb.de

International Conference and Exhibition on Design and Production of Dies and Molds
June 19/21, 1997
Hotel Princess
Istanbul - Turkey

Topics:
¡ Computer Aided Design Methods
¡ Computer Aided Manufacturing Methods
¡ Computer Aided Inspection snd QualityControl Systems
¡ CAD/CAM/CAE Systems
¡ CNC Systems for Die /Mold Machining Digitizing and Modelling
¡ Process Modelling sand Monitoring
¡ Process Simulation for Die /Mold Design
¡ Injection Molding
¡ Tooling for casting
¡ Sheet metal forming
¡ Bulk Forming
¡ New Processes
¡ Finishing/Polishing Techniques
¡ Economics of Die/Mold Manufacturing
¡ Machining of Hard Materials
¡ High speed milling of dies/Molds
¡ Electro-Discharge Machining of Dies/Mold
¡ Rapid Engineering, Prototyping Tooling

Deadlines
¡ November 8, 1996 Submission of abstracts
¡ February 7, 1997 Submission of camera-ready manuscripts

prof. B. Kaftanoglu
CAD/CAM/ROBOTICS CENTER
Mechanical Engineering Department

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06531 Ankara
Turkey
Tel : 903122105290 - 2105225 - 2102554
Fax : 903122101275
e-mail : diemold@rorqual.cc.metu.edu.tr
web site : http//www.metu.edu.tr/~ wwwdmold/

25th North American Manufacturing Research Conference
NAMRC XXV
May 20-23, 1997
University of Nebraska
Lincoln, Nebraska, USA

Topics:
¡ Mechanics and technology of material removal processes, including non-traditional processes
¡ Design, dynamics, control and accuracy of machine tools
¡ Mechanics and technology of material forming processes, including powder consolidation casting, welding, and polymer and composite materials processing
¡ Material behavior and tribology, as related to manufacturing processes
¡ Computer-aided design and manufacturing, including robotics and automation
¡ Manufacturing systems simulation and design, including concurrent engineering
¡ Human factors of manufacturing processes and systems.

Deadlines
Abstract : October 1, 1996
Final paper : 31 January 97

Please send abstract to:

Paul K. Wright
NARMI/SME Scientific Committee Chair
University of California - Berkeley
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Etcheverry Hall
Berkeley, California U.S.A. 94720-1740
Tel : 5106422527
Fax : 5106435599
E-mail : pwringht@robocop.berkeley.edu
World Wide Web : http/ / kingkong.me.berkeley.edu

ISATP'97
1997 IEEE International Symposium on
ASSEMBLY AND TASK PLANNING

August 7-9, 1997 Marina del Rey Hotel
Marina del Rey, California

Topics :
¡ Design for assembly
¡ Assembly modeling
¡ Rapid set-up assembly
¡ Assembly sequence planning
¡ Assembly cost evaluation
¡ Part feeding and reorientation
¡ Action planning
¡ Gross motion Planning
¡ Distributed planning

¡ Manufacturing process planning
¡ Planning under uncertainty
¡ Plan Monitornig
¡ Robotic assembly
¡ Assembly representations
¡ High volume assembly
¡ Assembly impact on factory operations
¡ Tolerance analysis and design
¡ Fixturing
¡ Workcell planning
¡ Fine motion planning
¡ Sensor planning
¡ Production planning
¡ Scheduling
¡ On-line planning and reaction
¡ Error detection and recovery
¡ Manipulations
¡ Line balancing and optimization

Deadlines
Submission of papers : Feb. 14, 1997
Camera-ready copy due : May 9, 1997

For general information contact :
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MOT. 97
6th INTERNATIONAL CONFERENCE ON
MANAGEMENT OF TECHNOLOGY
25/28 June 1997
Gšteborg Sweden

Topics :

¡ Application of technology to learning organisations
¡ Enterprise integration and integrated information systems
¡ National technology policies
¡ Technology for the sustainable society for example green manufacturing and pollution prevention
¡ Cultural differences in innovation, entrepreneur ship and technology management
¡ Management of technology education : curricula, program evaluations and unmet needs
¡ Methods in technology management
¡ Technology transfer, knowledge transfer, and other terms representing the process by which
- sources and users of scientific and technical knowledge are linked,
- innovations are applied and commercialised
¡ Industrial technology management
¡ Service and government sector technology management
¡ Systems of innovation and technology as discusses by OECD and others)
¡ Creation of work opportunities.

Deadlines

Abstracts (original and three copies) : September 30, 1996
Full papers: December 15, 1996
Revision of accepted full papers : March 31, 1997

Conference Secretariat
MOT 1997
SMR, Chalmers Science Park S-412 88 Gštherborg Sweden
Tel : +46317724178
Fax : +46317724240
Internet : randd@netg.se

8th ICPE
International Conference on Production Engineering
August 18-20, 1997
International Conference Hall Hokkaido University
Sapporo, Japan

Topics :
¡ RPD : Rapid Product Development
¡ Generative manufacturing methods and conversion technologies
¡ Design and information management
¡ Virtual prototyping
¡ Reverse engineering
¡ Application areas

Deadlines
Submission of 800 words abstracts Oct. 30, 1996
Submission of full paper or short paper Jan. 31, 1997
Submission of Camera-ready format Apr. 30, 1997

Conference Secretariat - 8th ICPE
c/o The Japan Society for Precision Engineering Ceramics Building
2-22-17 Hyakunin-cho Shinijiku-ku Tokyo 169 Japan
Tel : +81333621979
Fax : +81333670994
E-mail : ISN00003@niftyserve.or.jp

FAIM 97
Flexible Automation and Intelligent Manufacturing
June 25th - 27th 1997
Middlesborough U.K.

Conference Themes
¡ Manufacturing in a world market
¡ Concurrent and simultaneous engineering
¡ Factory automation
¡ Information technology and manufacturing
¡ Competitive issues relevant to process industries

Deadlines
Submit abstract (250 words) September 5, 1996
Submit final paper February 28, 1997
Final acceptance March 28, 1997

Jean Tennant
FAIM 97 Conference Secretariat EPICC
Cleveland Business Centre 1 Watson Street
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Fax : 01642499115
(International code : +441642)
EPICC E-mail : EPICC @ Tees.ac.uk.

5th International Conference on Sheet Metal
She - Met 97
8 - 10 April 1997
University of Ulster

Scope :
¡ Processes
¡ Press and press tools
¡ Fabrication and cutting
¡ Materials and testing
¡ Modelling techniques
¡ Manufacturing systems
¡ Condition monitoring and diagnostics
¡ Quality and reliability
¡ Metal finishing
¡ Education and training

Deadlines
Abstract October 14, 1996
Full paper December 16, 1996

Mrs L. McClean
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Fax : +4401232366060
e-mail : Scpdu@Ulst.ac.uk
Information : http://www.ulst.ac.uk/research/shemet97

13 th International Conference on
Computer Aided Production Engineering
17/19 September 1997
Warsaw University of Technology
Warsaw Poland

Topics :
CAD / CAM
CIM
Rapid prototyping
Robotics and automation of manufacturing processes
Flexible manufacturing systems
Production planning and control
Process monitoring
Information and decision support systems in production
Concurrent engineering

Deadlines
30 December 1996 abstract of 200-300 words
16 May 1997 final papers for publication

CAPE'97 Secretariat
Warsaw University of Technology, Faculty of Production Engineering
Narbutta 85,02-524 Warsaw, POLAND

Tel : +48+22499443, 6608321, 6439863
Fax : +48+22499798
E-mail : CAPE@WIP.PW.EDU.PL

IMECE 1997
AMERICAN SOCIETY OF MECHANICAL ENGINEERS
MANUFACTURING ENGINEERING DIVISION - (ASME/MED)
International Mechanical Engineering Congress and Exposition
"Intelligent and Flexible Systems"
November 16-21, 1997 -
Loews Anatole, Dallas, Texas, USA

Program Chair: Gloria J. Wiens
Mechanical Engineering Department
University of Florida
237 MEB
Gainesville, FL 32611
Tel.: 352-392-0806
Fax: 352-392-1071
E-mail: gwiens@cimar.me.ufl.edu

Deadlines:
Papers for Journal publication shall be submitted by
December 15, 1996. Papers submitted for the 'Symposium Only'
must be received by February 1, 1997.
Camera-ready mats are due June 25, 1997.

Symposia on the following topics:

History of Manufacturing
Metal Cutting: 1907 to 1997
90 years of machining research - theory and practice, machinability of metals - old and new measures, experimental methods in machining, FEM in machining, mechanics of machining - statics/dislocation mechanics/dynamics, and history of cutting tools.

Professor J T. Black, Department of Industrial and Systems Engineering, 307 Dunstan Hall,
Auburn University, AL 36849-5346, Tel.: 334-844-1375, FAX: 334-844-1381, E-mail: jblack@eng.auburn.edu
Dr. Elliot Stern, 6129 Savoy Circle, Lutz, Florida 33549, Tel.: 813-948-0195

Advances in Machining and Finishing Processes and Controls
Design of chip control tools; cutting tool materials and coatings; tool holder design for high speed machining; cutting tool inspection and tolerances; design and manufacture of indexable tools; automated fixture planning
and design optimization; reconfigurable, modular, agile fixtures; part-fixture contact mechanics; impact of fixture on part quality; and 'smart' fixtures.

Professor Shreyes Melkote, Woodruff School of Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA 30332-0405, Tel.: 404-894-8499, FAX: 404-894-9342,
E-mail: shreyes.melkote@me.gatech.edu
Dr. Shounak Athavale, Ford Motor Company, P.O. Box 2053/Mail Drop 3135, SRL, 20,000 Rotunda Drive, Dearborn, MI 48121-2053, Tel.: 313-621-0718, FAX: 313-337-5581, E-mail: sathaval@ford.com

Machine Tools

New design and development (spindles, slideways, structures, bearings, and other mechanisms design); machine tool dynamics and vibration (vibration isolation, damping design, modeling and simulation); and new materials (novel materials which help increase structural stiffness, absorb vibration, and increase machine tool accuracies).

Professor Bi Zhang, University of Connecticut, 191 Auditorium Road, Storrs, CT 06269-3139, Tel.: 860-486-1489, Fax: 860-486-2269,
E-mail: zhang@pmc.uconn.edu
Dr. Joseph D. Drescher, Pratt & Whitney, 400 Main Street, East Hartford, CT 06108, Tel.: 860-565-2929, Fax: 860-565-8249, E-mail: dreschjd@pweh.com

Automatic Deburring and Finishing Methods
Robotic grinding/deburring/finishing; lead through teaching/operator assisted methods; advanced design, analysis and control of deburring heads; burr prediction and detection methods for control; process-based intelligent and adaptive control; passive and active force control; sensor fusion techniques; and precision edge deburring.

Francis A. Reed, P.E., Corporate Research and Development, General Electric
Professor Gloria J. Wiens, Mechanical Engineering Department, University of Florida, 237 MEB, Gainesville, FL 32611, Tel.: 352-392-0806, Fax: 352-392-1071, E-mail: gwiens@cimar.me.ufl.edu

Quality of Traditionally-Machined Surfaces
Machined surface finish; dimensional accuracy related to machining force, temperature, and kinematic and thermal machine-tool errors; surface variability due to effects of variability in process inputs; residual stresses, work hardened layers and thermally transformed layers related to machined surface quality; and machining dynamics as it relates to machined surface quality. Issues related to by-products such as chips and worn out tools are of interest only in terms of their effect on machined surface quality.

Professor William J. Endres, Department of Mechanical Engineering and Applied Mechanics, University of Michigan, 2250 G.G. Brown, Ann Arbor, MI 48109-2125, Tel.: 313-936-0413, FAX: 313-647-3170
E-mail: endres@umich.edu

Dr. Vivek Chandrasekharan, Manuf. & Logistics Technology Div., Caterpillar Inc., P.O. Box 1875, Peoria, IL 61656-1875, Tel.: 309-578-2967, FAX: 309-578-4491, E-mail: chandv@cat.com

Sensor Fused Intelligent Machining Systems
Advanced sensor development and integration with production machine tools; monitoring of machining processes and sensor fusion for better evaluation of machining process states; control of machining processes (e.g., compensation of thermal deformation errors, active control of machining vibrations, high speed contouring error control, guideway friction
compensation, and adaptive control of surface finish in cutting); advancements in CNC system architecture for sensor fusion (next generation CNC architectures which allow modular integration of process control and monitoring algorithms developed by 'end users').

Professor Yusuf Altintas, Manufacturing Automation Laboratory, Department of Mechanical Engineering, The University of British Colombia, 2324 Main Mall, Vancouver, B.C. V6T 1Z4, CANADA, Tel.: 604-822-5622, Fax: 604-822-2403, E-mail: altintas@mech.ubc.ca
Dr. Richard J. Furness, Ford Motor Company, MD 3135, SRL, 20,000 Rotunda Drive, Dearborn, MI 48121-2053, Tel.: 313-323-1548, Fax: 313-845-0100,
E-mail: rfurness@ford.com

New Directions for Manufacturing Technology

a) Fundamentals of electronic packaging manufacturing processes (e.g., doping, etching, bonding, encapsulation, metallization, passivation, lamination, drilling, component placement, solder reflow, and rework) advanced product and process modeling techniques, experimental
verification methods, and state-of-the-art sensoring and monitoring technologies.
Professor Sheng Liu, Department of Mechanical Engineering, Wayne State University, Detroit, MI 48202, Tel.: 313-577-3875, Fax: 313-577-8789
Dr. Chao-Pin Yeh, Motorola, Inc., 1303 E. Algonquin Road, Mailstop: IL01/ANX2, Schaumburg, IL 60196, Tel.: 847-576-4542, Fax: 847-538-5178, E-mail: acy001@email.mot.com

b) Processes and process controls involving: fabrication of semiconductors, devices, electrical and electronic components, printed wire boards, and printed wire board population with emphasis on issues and trends involving fine and ultra fine pitch connections and components,
Ball Grid Arrays (BGA), and Direct Chip Attach (DCA).

Professor C. Sahay, Mechanical Engineering Department, SUNY-Binghamton, Binghamton, NY 13902-6000, Tel.: 607-777-2304, FAX: 607-777-4822, E-mail: csahay@binghamton.edu
Dr. A.J. Rafanelli, Mail Stop 149, Raytheon Electronic Systems, 1847 West Main Road, Portsmouth, RI 02871, Tel.: 401-842-4850, FAX: 401-842-5224, E-mail: Anthony_J_Rafanellil@ccmail.ssd.ray.com

Environmentally Conscious Design and Manufacturing
Forum for clarifying research objectives and presenting current and future research activities on environmentally conscious design and manufacturing (ECDM): concepts; studies; researchtechnologies; energy, materials and resource issues; modeling techniques; and design for "X".

Professor Hong-Chao Zhang, Department of Industrial Engineering, Texas Tech University, Lubbock, TX 79409-3061, Tel.: 806-742-3400, Fax: 806-742-3411, E-mail: zhang@ttacs.ttu.edu
Dr. Greg Pitts, Director, Environmental Programs, Microelectronics and Computer Technology Corporation (MCC), 3500 W. Balcones Center Dr., Austin, TX 78759-5398, Tel: 512-338-3790, Fax: 512-338-3885
E-mail: pitts@mcc.com

Agent-Based Collaborative Design and Manufacturing
Agent communication procedures; task decomposition methods; representation of the functionality of manufacturing nodes for users; agent-based prototyping and manufacturing services; system and user interfaces;
and impact of Web based interchanges using applets and Java.

Professor Paul Wright, Dept. of Mechanical Engineering, University of California-Berkeley, 6157 Etcheverry Hall, Berkeley, CA 94720, Tel.: 510-642-2527, Fax: 510-642-1933
E-mail: pwright@robocop.Berkeley.EDU
Professor Mark Cutkosky, Dept. of Mechanical Engineering, Stanford University, Palo Alto, CA 94305-4021, Tel.: 415-723-4287, Fax: 415-723-3521, E-mail: cutkosky@sunrise.stanford.edu

New Generation Manufacturing Equipment and Systems (Panel of Leading Experts)
Highlight focussed topics in the areas: self-diagnostic machines; remote manufacturing system for manufacturing globalization; micromachines; software compensation systems for machine accuracy improvement; and ecofactory.

Dr. Jay Lee, NSF/DMII, 4201 Wilson Blvd., Room 585, Arlington, VA 22230, Tel.: 703-306-1330, Fax: 703-306-0298 or 0326, E-mail: jalee@nsf.gov
Professor A. Galip Ulsoy, Dept. of Mechanical Engineering and Applied Mechanics, The University of Michigan, 2250 G.G. Brown Bldg., Ann Arbor, MI 48109-2125, Tel.:

13-936-0407, Fax: 313-936-0047, E-mail: ulsoy@umich.edu

Education in Manufacturing

New Concepts in Manufacturing Engineering Education Forum for presenting new and innovative classroom and laboratory teaching techniques of manufacturing engineering. Both academy and industry educational settings.

Professor Elijah Kannatey-Asibu. Jr., Department of Mechanical Engineering and Applied Mechanics, The University of Michigan, 3134 G.G. Brown, Ann Arbor, MI 48109-2125, Tel.: 313-936-0408, Fax: 313-647-3170, E-mail: eka@engin.umich.edu
Dr. K. (Subbu) Subramanian, World Grinding Technology Center, Norton Company, 420-103, 1 New Bond Street, Worcester, MA 01605-0008, Tel.: 508-795-2157, Fax: 508-795-4283

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from the labs...

10 Years Production Technology Centre Berlin - 20 Years IPK

The Berlin Production Technology Centre (PTZ) celebrates its 10th anniversary this year. On April 30 1986, the Institute for Machine Tools and Factory Management (IWF) of the Technical University Berlin and the Institute for Production Systems and Design Technology (IPK) of the Fraunhofer-Gesellschaft started work in the new building by the river Spree. The PTZ was officially opened by the former President of the Federal Republic of Germany, Dr. Richard von Weizsaecker, on November 25 1986.
On the occasion of this anniversary, 300 visitors were welcomed in the PTZ on September 18. Professor Spur, head of both the IWF and the IPK, gave a speech on the topic "The answer of the research institutes to the industrial change".The division directors of the IPK contributed more information from their perspectives in the following panel discussion. Afterwards, the visitors took the opportunity to exchange information with the engineers and scientists in the laboratory of the PTZ. The exhibited research projects and experiments came from the fields of machining technologies, new materials, assembly and disassembly, control software for machines, plant, and production processes, robotics, image processing, information and communication technology, simulation technology, computer-integrated product development as well as factory and quality management. Among the important projects are the "Berlin Machine Tool Inititiave", the special research project "Disassembly Factories" sponsored by the German Research Society, and the international initiative "Realistic Robot Simulation". Image processing is one of the areas where the PTZ successfully transfers know-how from production technology to new fields such as the identification of fingerprints, signatures and human faces. Other central technologies are multi-media and broadband communications. New systems make it possible to develop complex products from world-wide distributed locations or to detect and remove malfunctions of machines by remote diagnosis.
A prominent example of the increasing international activities is a recently acquired project in Indonesia, where engineers from Berlin will be planning a new automobile plant in co-operation with an Indonesian consortium.
The considerable increase in applied research and devolopment was only possible through the foundation of the Institute for Production Systems and Design,Technology (IPK) of the Fraunhofer-Gesellschaft in 1976. Today, IWF and IPK cover a wide range of topics in the field of factory management and production technology in research, development and teaching. Together, both institutes in the Berlin Production Technology Centre in 1995 generated a

turnover of 44,3 Mio. DM with a staff of 590 people, including over 300 research students.
The foundation of new companies is seen as a special form of technology transfer. In the twenty years since the start of the IPK, 27 companies were founded by former members of the two institutes. These firms with more than 1200 engineers and other highly qualified employees contribute significantly to the competitiveness and technological progress especially of the regions Berlin und Brandenburg.

Ultraprecision machining of ferrous metals

Up to now the ultraprecision machining of ferrous metals is limited due to the absence of suitable tool materials. While a limited spectrum of materials (e. g. aluminum, copper, brass, electroless nickel) is machinable with monocrystalline diamond tools in ultraprecision turning and fly-cutting operations, in case of ferrous metals catastrophic tool wear occurs. The developement of qualified tool materials would offer a number of innovations, e. g. in the fields of aerospace, medical applications and mold manufacturing. For this reason the research group "Micromachining" ("Forschergruppe Mikrozerspanung") was established at the University of Bremen.

The main goal of the research group is the development of new tool materials respectively the coating or modification of monocrystalline diamond for the ultraprecision machining of mild and hardened steel. In particular, research work in the following scientific areas will be carried out:

- development of new tool materials, i. d.:
    - nanocrystalline tool materials
    - oxide-sinter-ceramic by SOL-GEL technique
    - nanocrystalline diamond coatings
    - coatings by MOD-technique
    - modifications of monocrystalline diamonds by ion implantation, nitriding and carburizing
- investigation of wear mechanisms (in process and by simulating techniques)

Research work of this extent requires an interdisciplinary cooperation in the areas of material science, ceramics, tribology and manufacturing technolgy. Thus, the research group, presently founded by the German Research Foundation (DFG) for a period of two years, consists of qualified research workers of the Faculty of Production Engineering and related research institutes.

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University Center for Advanced Technology

University Center for Advanced Technology - Prof. V.R. Milacic is a new built facility. Centre has main objective the harmonious interaction between university and industry and is embedded into Department of Production Engineering- Prof. M. Kalajdzic and Institute of Production Engineering & CIM-

Prof. M. Glavonjic and Prof. D. Milutinovic at Mechanical Engineering Faculty, University of Beograd.
Centre provides scientific and technological expertise's and educational program in manufacturing technology at undergraduate and graduate levels at Beograd University.

Research Activities
Basicscientific research programmes are defined through R&D projects supported by industry and by Ministry of Science and Technology. The concurrent R&D programmes cover broad domains at manufacturing technology, like:
¡ Machining (cutting, forming, nonconventional methods),
¡ Surfaces,
¡ Manufacturing machines,
¡ CAE/CAD/CAM,
¡ Robotics & AI,
¡ Design theory,
¡ Metrology,
¡ Assembly,
¡ Intelligent manufacturing and artificial life,
¡ Human factor, transfer technology and globaliyation.

Educational activities throgh research at University Centre for Advanced Technology include :
¡ Undergraduate studies,
¡ Graduate studies,
¡ Innovation courses on advanced manufacturing topics for professionals.

Laboratories
Centre is equipped with update machining centers, robots, CMM, EDM, design stations and experimental equipment for machine dynamics and control. Following laboratories are established
¡ Laboratory for CAE,
¡ Laboratory for Automation,
¡ Laboratory for CIM,
¡ Laboratory for CAD/CAM,
¡ Laboratory for FMS,
¡ Laboratory for Robotics & AI
¡ Laboratory for CAQ.

Network
Centre is networked in LAN, UNIVERSITY NETWORK AND INTERNET.

International program
Centre offers rich opportunities to the foreign graduate studens and post doctoral research program. We are in process to provide exchange program for visiting professors and leading researchers and industrial experts to work with us on global research programs in MANUFACTURING TECHNOLOGY.

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A new Engineering Research Center for Reconfigurable Machining Systems

The National Science Fundation in Washington DC has established at the University of Michigan a new Engineering Research Center (ERC) for

Reconfigurable Machining Systems. This center is oneof four new ERCs selected in competitive merit, review from among more than 100 candidates in 1996.
The Director of the Center in Professor Yoram Koren and Deputy Director is Professor Galip Ulsoy. The Center will develop a new type of manufacturing system, the reconfigurable manufacturing system (RMS). This future system will allow flexibility not only in producing a variety of parts, but also in changing the system itself. Such a system can be created using basic process modules - hardware and software - that can be rearranged guickly and reliably. Building blocks for RMS will be machines, software and controller modules. Accordingly, reconfiguration will be studied at the levels of machines, controls and whole systems.
The Center will be organized into five research thrust areas : System Design & Integration, Software Architecture & Information, Measurement & Control, Mechanical Design, and Processes and Tooling. More than 30 industrial companies are the founders of the center. They include machine tool builders, control vendors, tooling and software companies as well as three end-user sectors : aerospace, heavy equipment, and automotive. The center's annual budget is approximately $ 6 million.

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Books and Journals

International Journal of Electrical Machining

The International Journal of Electrical Machining is an international vehicle for the dissemination of information and new concepts embracing a wide range of electrical machining methods including: electrical discharge machining, electro-chemical machining, laser machining, electron beam machining, ion beam machining, ultra-sonic machining, rapid prototyping techniques, combined processes, and their integration into manufacturing.

The aims of the IJEM are :

- to propagate the latest scientific and technological news in the field of electrical machining metyhods
- to exchange experiences in putting electrical machining into practice
- inform about the concurrent state of the art and suggest directions of further development.

Central to the journal's content are technical and scientific papers and notes relating to original work carried out in universities, research and development establishments, and within industry.

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Journal of Engineering Manufacture
Edited by Professor A. N. Bramley, University of Bath, UK.

Topics : lean production, agile manufacturing, businness process, concurrent engineering, engineering materials, energy beam technology, computer based modeling , control and simulation systems.
The Journal of Engineering Manufacture provides a focus for these developments by publishing papers covering technological and scientific aspects of original research, development and management strategies in manufacturing. The criterion in all cases is that the paper must make a contribution to knowledge, not necessarily immediately applicable but possibly for others to build upon.

Recent articles include :
¡ Research developments in rapid prototyping
¡ Aggregate production planning using genetic algorithms
¡ Extended formability limits for tubular components through combined injection/upsetting-a finite element analysis.

Edited by Professor A.N. Bramley, University of Bath
E mail :a.n. bramley@bath.uc.uk

Machining Science and Technology
An International Journal

Topics:

¡ Traditional Machining Processes
¡ Nontraditional Machining Methods
¡ Novel Machining Concepts
¡ Cutting Tools and Fluids
¡ In-Process Sensors
¡ Intelligent Machinig Systems
¡ Machine Tools
¡ Nondestructive Evaluation
¡ Surface and Subsurface Integrity
¡ Fundamentals of Removal Processes
¡ Tool Wear and Thermal Effects
¡ Influence of Machining on Performance
¡ Metals, Polymers, Ceramics, and Composites.

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A new book on
Principles of Abrasive Processing
by Professor M.C. Shaw

An extensive monogaph concerning all aspects of abrasive processing.
M.C. Shaw, Arizona State University, Tempe, USA
Oxford University (Clarendon) Press Walton Street , Oxford, OX2 6DP, U.K.
(ISBN 0-19-859021-0, 592 pages, 47 halftones, 370 line figures, June 1996, No. 13 in Oxford Series on Advanced Manufacturing)

This book is a sequel to "metal cutting principles" : also by M.C. Shaw (ISBN 0-19-859002-4, 594 pages, 16 halftones, 396 line figures, October 1984, No. 3 in Oxford series on Advanced Mfg.)

A new book on
High-Speed Machining Hochgeschwindigkeits- bearbeitung

(German Edition with English Summaries)

Edited by Prof. Dr. - Ing. Herbert Schulz, Institut fŸr Produktionstechnik und Spanende Werkzeugmaschinen, Technische Hochschule Darmstandt. 1996. 300 pages, 188 figures.
Hardcover DM 86,00
Hanser Publishers ISBN 3-446-18796-0

This book summarizes the present state of the high speed manufacturing technology in the field of metal cutting applications, as well as of the high-speed machines and their components.
The particular conditions in designing such machines and their subassemblies are highlighted, and the focal points of application of high-speed machining are specifically emphasized.
Users are offered the opportunity of taking appropriate machining parameters directly from numerous charts and diagrams.

Contents:

¡ Production Process
¡ High - Speed Milling of Light Metals
¡ High - Speed Milling of Difficult -to-cut- materials
¡ High - Speed Milling of Copper alloys
¡ High - Speed Turnmilling
¡ High - Speed Turning
¡ High - Speed Drilling and Reaming
¡ HSC - Machine Tools
¡ High - Speed Lathes
¡ High - Speed Milling Machines
¡ High - Speed Turnmilling Machines
¡ High - Speed Drilling Machines
¡ Components and Assemblies
¡ Infeed Systems
¡ Motorspindles
¡ Clamping Systems for Rapidly Rotating Tool
¡ CNC - Controls
¡ Safety Precautions of Machines and Tools
¡ Applications
¡ High - Speed Milling in Die and Mold Manufacturing
¡ Machining of Hardened Steel
¡ Dry Machining
¡ CAD/CAM Systems.

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