

INTERNATIONAL INSTITUTION FOR PRODUCTION ENGINEERING RESEARCH NEWSLETTER

edited by the Technical Secretary
M. SANTOCHI

Nr. 14 - April 1999

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from the Editor

Dear Colleagues,

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

October 1999

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 address:

santochi@ing.unipi.it.

Please consider that the deadline for your contributions is:

September 15th 1999.

In addition I wish to remind you that **links to your own homepages are welcome** on CIRP's web site.

The Technical Secretary
Prof. Marco Santochi

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Awards

In the last issue of the CIRP newsletter it was erroneously announced that our Colleague prof. **H.K. Toenshoff** was honoured by the Technical Faculty of the Aristoteles University of Thessaloniki, Greece, with the title of Honorary Professor. The fact was that our Colleague prof. **H.K. Toenshoff** was awarded Doctor Honoris causa. We renew our congratulations and apologize for the mistake.

We are glad to announce that our Colleague Professor **Neil A. Duffie**, was recently installed into the College of Fellows by the Society of Manufacturing Engineers. Professor Duffie was chosen for his many years of outstanding contributions to SME and the field of manufacturing engineering. Professor Duffie is recognized as a leader in the field of manufacturing engineering education. Very early in his career, his potential was noticed by SME when he received the TRW Post- Doctoral Award in Manufacturing Engineering which enabled him to study at one of the world's premiere precision engineering laboratories, the Cranfield Institute of Technology, UK. His leadership in this field has continued throughout his career and was recently recognized by the Japanese who awarded him, in 1995, a highly competitive Visiting Fellowship at the AIST Mechanical Engineering Laboratory. Other significant contributions to manufacturing education include a widely-used textbook on the computer control of machines and processes which he co- authored with our Colleague Professor John Bollinger. At the University of Wisconsin Madison where he serves as a Professor of Mechanical Engineering, Professor Duffie has been instrumental in developing an undergraduate program in manufacturing systems education, including state-of- the-art laboratories. Professor Duffie has also excelled in his diverse research activities. He did seminal research in the field of heterarchical control, a type of distributed control first introduced by another CIRP Colleague, Dr. J. Hatvany, prior to his untimely death. Duffie's work took this basic control architecture concept and made it a reality, first in his laboratory and subsequently into industry where it is widely used today. This research alone has clearly earned him an outstanding international reputation. He has also done pioneering work in precision machine metrology; especially noteworthy is his work with touch-trigger probes, a technology that has earned him the respect and active involvement with Renishaw PLC in the United Kingdom. Earlier work dealt with the development of accurate, cost-effective and reliable industrial seam welding systems. An important characteristic of all of Professor Duffie's research is that he has made the effort to ensure that his concepts lead to implementation in industry. One specific example of the practical nature of his research is that he has been responsible for two experiments that have flown on the Space Shuttle. The record of service related accomplishments of Dr. Duffie is also impressive spanning a number of organizations and types of activities. He has served SME well in a number of capacities which include current membership on the SME Board of Directors. Professor Duffie has been on SME's Journal of Manufacturing Systems Editorial Board for more than a decade and served several terms on the SME/NAMRI Scientific Committee. Dr. Duffie has also served the AIAA as Chair of its Space Automation and Robotics Technical Committee. He has been an Corresponding Member of CIRP for 15 years and contributed to our organization in various offices in an exemplary manner.

It is our pleasure to announce that our Colleague **Jack Dinsdale**, former Professor of Mechatronics at the University of Dundee, Scotland, has been awarded the bronze medal for distinguished service by the Technical University of Lodz, Poland. The award was made for his contribution to the 3-year programme *Applications of computers in engineering* funded by the EU- TEMPUS office. Professor Dinsdale taught Mechatronics at the Technical University of Lodz at Bielsko-Biala for four weeks each year, and seven Polish students carried out their project work at the University of Abertay Dundee under Professor Dinsdale's direction. The medal was presented by Professor Andrzej Wlochowicz, vice-Rector of TU Lodz, at a ceremony held in Poland in June 1998. Jack Dinsdale has now taken early retirement, but he continues to teach part time at the University of Abertay Dundee and to undertake engineering consultancy work.

It is our pleasure to announce that our Colleague, Professor *Jean-Pierre Kruth* (University of Leuven, Belgium), has been honoured on the occasion of the 30th International CIRP Seminar on Manufacturing Systems "Laser Assisted Net Shape Engineering - LANE '97" in Erlangen, Germany, by Professor Kals (University of Twente, The Netherlands) and Professor Geiger (University of Erlangen-Nuremberg, Germany) with the special title "Knight of Laser Technology" in recognition of his services to laser technology.

It is our pleasure to announce that our Colleague Professor **Don A. Lucca** has received the Alexander von Humboldt Research Award for his research and teaching contributions to advanced manufacturing. Established in 1972, the Humboldt Research Awards were created to foster collaborative work between German scientists and researchers from other countries. The award enabled Prof. Lucca an 8 month stay at the research institute of our colleague Professor Ekkard Brinksmeier at the University of Bremen. Their research has focused on the assessment of subsurface damage in semiconductors.

It is our pleasure to announce that our Colleague Prof. **Ekkard Brinksmeier**, University of Bremen, received the 1999 "Leibniz-Preis". The Leibniz-Preis is the most outstanding German Research Award and is granted by the German Research Foundation (Deutsche Forschungsgemeinschaft). Prof. Brinksmeier received the award for his outstanding work in precision engineering and environmental conscious machining processes. The future research work of Prof. Brinksmeier is now supported by an extra grant of 3 Million DM. The nomination of Prof. Brinksmeier is not only a high personal achievement but also of great significance for production engineering sciences.

It is our pleasure to announce that our Colleague Professor **Zvi Katz** has been elected by the Society of Manufacturing Engineers (SME) for induction into the 1988 College of Fellows. He was chosen for his many years of outstanding contribution to manufacturing. Prof Katz holds the Morris Gillman Chair in Manufacturing at Rand Afrikaans University, Johannesburg South Africa.

From the Editor Go back to the Table of Contents Meetings, seminars and conferences

Meetings, Seminars and Conferences

ICME 2000

2nd CIRP International Seminar on

INTELLIGENT COMPUTATION IN MANUFACTURING ENGINEERING

21-23 June 2000, Capri, Italy

Topics

- Manufacturing processes:
 - machining
 - forming
 - casting and solidification
 - welding
 - heat treatments
- Process modeling and monitoring
- Design, simulation and modeling
- Assembly and disassembly
- Sensors and sensing techniques for manufacturing
- Process/Production planning and control
- Diagnostics and maintenance
- Automated inspection and quality control
- Concurrent/Simultaneous engineering
- Rapid and virtual prototyping
- Continuous, discrete and hybrid processes
- Distributed and co-operative production
- Intelligent machines, robots and systems
- Intelligent manufacturing systems
- Knowledge and data-base for IMS
- Holonic manufacturing systems
- Virtual manufacturing
- Dynamic scheduling for complex manufacturing
- Evolutionary and emergent computation for manufacturing
- Customer driven production
- Product life cycle management
- Factory design and integration
- Human factors in IMS
- Manufacturing applications of:
 - experts systems

- artificial neural networks
- fuzzy and neuro-fuzzy models
- multi agents
- genetic algorithms
- simulated annealing
- hybrid approaches
- Any other topic related to the Seminar's scope

Important dates

- Submission of abstracts: 15 October 1999
- Notification of acceptance: 15 December 1999
- Submission of full papers: 31 March 2000
- 2nd CIRP International Seminar: 21-23 June 2000

For more information

<p><i>Scientific Program</i> Prof. Roberto Teti Dept. of Mat. And Prod. Eng. Univ. of Naples "Federico II" Piazzale Tecchio, 80 80125 - Naples, Italy Phone: +39.081.7682362 E-mail: tetiro@unina.it</p>	<p><i>Technical Organization Seminar Secreteriat</i> Dr. Pasquale Buonadonna Dept. of Mat. And Prod. Eng. Univ. of Naples "Federico II" Piazzale Tecchio, 80 Phone:+39.081.7682555 Fax: +39.081.7682362</p>
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**Second International Workshop
 Intelligent Manufacturing Systems 1999
 K.U. Leuven - Leuven, Belgium
 22-24 September 1999**

Topics

- Manufacturing paradigms
- Multi-agent systems in manufacturing
- Holonic manufacturing systems
- Manufacturing control and shop floor control
- Process and production planning
- One-of-a-kind production
- Product life-cycle modeling and simulation
- Concurrent engineering

- Re-manufacturing modeling and simulation
- Environmentally benign design and manufacturing
- Product, processes and organization for competitive and sustainable growth
- Virtual and extended enterprises
- Human aspects in manufacturing
- Training and education of manufacturing

Submission address

Attn. Paul Valckenaers - IMS 1999 K.U. Leuven - PMA Celestijnenlaan 300 B B-3001 Heverlee, Belgium Fax: +32-16-32.29.87 E-mail: Paul.Valckenaers@mech.kuleuven.ac.be

LASER METROLOGY 1999
International symposium on
Laser Metrology for Precision Measurement and Inspection in Industry
Florianópolis, Brazil
13-15/October 1999

Topics

Measurands

- Geometrical quantities
- Deviation from straightness, roundness, flatness and orthogonality
- Microgeometrical quantities
- Motion, velocity and vibration
- Mechanical quantities

Measurement techniques

- | | |
|--|--|
| ○ Holographic interferometry | ○ Heterodyne techniques |
| ○ Speckle metrology | ○ Laser RADAR |
| ○ Shearing interferometry | ○ Direct optical probing of rough surfaces |
| ○ Absolute interferometric measurement | ○ Interferometric sensors |
| ○ Triangulation techniques | ○ Moiré methods |
| ○ Doppler techniques | ○ Fiber optics sensor |

Application of innovative components and techniques

- Application of novel laser designs
- Application of special optical components
- Applications on Geometrical Metrology and Non Destructive Testing
- Nanometrology

- Metrology for robotics and manufacturing processes
- 3D-measurement of the shape of complex objects
- Automatic on-line data processing
- Automated inspection
- Surface defects
- Error analysis of machine tools and components
- Manufacturing integrated measurement
- Nondestructive testing
- Experimental stress analysis

Capability of laser-based measurement instruments

- | | |
|--------------------------|---|
| ○ Reference standards | ○ Uncertainty modeling |
| ○ Calibration techniques | ○ Unification of modeling simulation with metrology |
| ○ Traceability | |

Submission address

Laser Metrology 1999
 Caixa Postal 5053
 CEP 88 040 - 970
 Florianopolis, SC - Brazil
 Telephone: ++55 48 239-2030
 Fax: ++55 48 239-2009
 E-mail: LaserMetrology1999@labmetro.ufsc.br

**euspen
 1st International Conference and General Meeting**

The European Society for Precision Engineering and Nanotechnology - euspen - was founded on October 1st 1998 and is funded within the European Commission Concerted Action programme. The foundation of euspen reflects the importance and vitality of high precision engineering, micro-engineering and nanotechnology in Europe. euspen is a non-for-profit society and will improve technology transfer and stimulate a wide range of EU transnational collaborative research projects. The 1st International Conference of euspen will take place from May 31st to June 4th, 1999 at the CCB Congress Centre Bremen, Germany. Throughout the conference there will be a industrial exhibition in the foyer of the CCB. Five industrial visits and three lab tours are offered on Monday, May 31st and Friday, June 4th. The first general meeting of euspen will be held on Wednesday, June 2nd. There will be nine sessions with oral presentations and two poster sessions.

Sessions and chairpersons:

- Precision Machines and Systems 1
 (Prof. M. Weck , IPT Aachen)
- Mechanical Processes
 (Prof. T. Moriwaki, Kobe University, Japan)

- Micro-Electro-Mechanical Systems (MEMS)
(Prof. R. W. Whatmore, Cranfield University, Great Britain)
- Precision Machines and Systems 2
(Prof. H. Kunzmann, PTB Braunschweig)
- Non-Mechanical Processes
(Prof. E. Brinksmeier, IWT Bremen)
- Technical Advances in New Products
(Dr. K. F. Beckstette, Carl Zeiss, Oberkochen)
- Nanotechnology - Fabrication and Metrology
(Dr. H. Launois, CNRS Ultimatech, France)"
- Dimensional Metrology
(Dr. A. Sacconi, IMG C, Turino, Italy)
- Assessment of Surface and Sub-Surface Properties
(Prof. D. A. Lucca, Oklahoma State University, USA)

Contact:

1st euspen Conference - Headquarters Prof. E. Brinksmeier, Universität Bremen FB4 / FG06
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218 4455 email: euspen@iwt.uni-bremen.de website: <http://www.euspen.com>

**23rd Aachen Machine Tools Colloquium (AWK) br> Aachen , Germany
June 10-11, 1999**

Competitive Production Technology - Aachen Perspectives

On June 10th and 11th 1999, the Laboratory for Machine Tools and Production Engineering (WZL) of the Aachen University of Technology and the Fraunhofer Institute for Production Technology (IPT) are staging the Aachen Machine Tools Colloquium under the motto: "Competitive Production Technology - Aachen Perspectives".

In 14 specialist papers prepared jointly with some 120 well-known industrial experts, researchers from the two institutes will be presenting realistic solutions and concepts for competitive production on the threshold of the next millennium.

The proceedings will be accompanied by a long-standing tradition of the Aachen Colloquium visits to the WZL and IPT test bays and laboratories, where young research engineers will present their developments and research work and be available for discussion.

A brief overview of topics at the AWK 1999:

- Future scenario
- Company strategies
 - Quality as a company strategy - tools for developing QM systems
 - Integrated environmental protection - just another fashion or recipe for success
 - Knowledge management for manufacturing companies - a challenge for workforce, technology and organisation

- Product development
 - Innovation management - systematic production of market success
 - Virtual engineering - effective product development systems for the 21st century
- Production
 - Intelligent production of lightweight parts
 - High performance processes - reliable processes for the future
 - Hybrid processes - productive energy-coupled manufacturing processes
 - Toolmaking with a future - partner for production
- Production systems
 - Trends in machine tool manufacturing
 - Internet technologies for automated engineering - a new working environment for the shop floor and the factory
 - Micro-engineering - from the idea to the product
 - Worker-oriented design of integrated measuring and testing processes

For further information please contact:

Aachener Werkzeugmaschinen-Kolloquium (AWK)

c/o RWTH Aachen

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**INTERNATIONAL CONFERENCE & EXHIBITION ON
GEARING, TRANSMISSIONS AND MECHANICAL SYSTEMS**

4-6 July 2000

**The Nottingham Trent University,
Nottingham, UK**

TOPICS:

Gears, mechanisms, drives, transmissions, mechanical systems, robotics and related areas. Within these areas, conference topics will cover, but are not limited to, design, manufacture, production, management, concurrent engineering, agile manufacturing, Internet-based engineering, CAD/CAM/CAE, material, experimental investigation, tribology, metrology, lubrication, analysis methods, finite/boundary element analyses, optimisation, artificial intelligence, evolutionary computing, control, soft computing, multimedia, virtual reality, rapid prototyping, etc.

IMPORTANT DATES:

Deadline for receipt of abstracts: 1 September 1999

Authors notified by: 15 October 1999

Deadline for receipt of full papers: 15 December 1999

Authors notified by: 10 March 2000

Deadline for receipt of papers
for publication: 14 April 2000

ABSTRACTS (300 WORDS) SHOULD BE SUBMITTED TO:

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FURTHER INFORMATION:

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CONFERENCE WEB SITE:

<http://www.domme.ntu.ac.uk/mechdes/gear2000>. Please visit
the site for updated details of the conference.

**INTERTECH 2000 An international technical conference on diamond, cubic boron nitride
and their applications**

Hyatt Regency - Vancouver - British Columbia, Canada

July 17-21, 2000

Topics

- Status of the industry
- Materials processed with superhard products (diamond, CBN, DLC)
- Diamond/CBN single crystal and polycrystalline products
- Diamond/CBN/DLC tools and other products
- Machines/Systems that used superhard tooling materials
- Research and development

Submission address

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Awards

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Books and journals

BOOKS AND JOURNALS

The practice of machine design

Edited by **Yotaro Hatamura**, Director of the Institute of creative design, Faculty of Engineering, Tokyo University.

An essential reference for both designers at the first experience or university students and for experienced designers who wish to review their design methods. This book offers a new way of thinking about machine design through a rich source of both theoretical concepts and practical examples. The editor is Prof. Yotaro Hatamura who has collected educational material during a 25 years teaching at the Tokyo University. The 42 authors are all graduates of the editor's faculty and bring their experience of designers in important Japanese industries.

After focusing the fundamental meaning of design and the right mental preparation as well as the responsibilities of designers, the book describes how the principles of design can be put into practice and how an initial plan is gradually transformed into a concrete design. The design thinking process from initial requirements to structure via function and mechanisms is first clearly explained and then illustrated through the meaningful example of an intelligent machining center. Well structured and comprehensive tables guide the reader in understanding the main features of different solutions. Sound concepts on the machining methods of different forms remind designers the constraints imposed by production requirements. Useful and practical data on features, selection criteria and usage of typical components of machines complete the basic knowledge of the designer.

Contents:

Significance of design. Specific process in design. Thinking processes in design. Function, mechanism and structure. Form. Force and strength. Dimension. Machining methods. Tool. Materials. Machine elements. Design and fabrication. Design and information. Drawing. Specific examples of design.

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Hardback. £70
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