INTERNATIONAL INSTITUTION FOR PRODUCTION ENGINEERING RESEARCH

NEWSLETTER

edited by the Technical Secretary
M. SANTOCHI

Nr. 18 - April 2001

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from the Editor

Dear Colleagues,

as many of you probably already know this is my last year of activity as the Technical Secretary and therefore as the Editor of the CIRP Newsletter. The new Technical Secretary will be elected during the next General Assembly and will continue and improve this publication. It could become a powerful vehicle of information within our scientific community and include many additional interesting items , as suggested in the Editorial of the President which we are honoured to host. I take the opportunity to thank all the Colleagues who have made this Newsletter possible through their contributions. A additional thank to Mrs. Chantal Timar-Shubert for her appreciable work of formatting and printing the Newsletter in the popular "yellow pages".

Nevertheless the next issue of the CIRP Newsletter is scheduled as usual for

October 2001

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

santochi@ing.unipi.it

I will forward your messages to the new Technical Secretary.Please consider that the deadline for your contributions is:

September 15th 2001.

The Technical Secretary

Prof. Marco Santochi

Acknowledgement

The Editor wishes to thank Mrs**. M. Maffei**, Dept. of mechanical , nuclear and production engineering of the University of Pisa for her valuable help in preparing the Newsletter.

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Editorial from the President

CIRP is structured in such a way that its dynamics emerge from only a few programmed opportunities for interaction: the January meeting in Paris and the General Assembly. There are very few, if any, other formal ways of communication of ideas, suggestions, etc. This Newsletter, a very laudable initiative of our Technical Secretary, next to being a valuable source of CIRP- related news, eventually could also serve as a vehicle of interaction between the CIRP Board and Council and the membership. This Editorial is a first attempt but it could be extended with sections like e.g. a Free Forum, etc., where ideas, suggestions, critical remarks could find a place.

Let me just mention a few points of special interest that are of my particular concern during my presidency.

At the top of my priority list is a renewed effort to have the CIRP Annals, the most authoritative reference in the world on manufacturing science, listed as soon as possible in the Science Citation Index. We have renewed our contacts with ISI after having compiled new convincing evidence of the scientific standing of the CIRP Annals.

Of special concern should also be the still very low number of Members from developing or newly industrialised countries. If CIRP considers it as its role to contribute to a more equitable sharing of the world's wealth, then our scientific message must also reach those countries that are not yet represented in our membership but badly need their manufacturing industry upgraded. I call upon our members to find suitable scientists and/or industrialists and introduce them to CIRP. Recently, the Invited Member status was introduced for this purpose.

We are looking for new ways to involve the Associated Members more deeply in the activities of CIRP. Initiatives are taken to organise the Associate Members lunch partly as a kind of Round Table where new developments that are of particular interest to them are being presented, e.g. by organisers of CIRP-related events. Nancy will be the first opportunity to experiment with this new initiative. Associate Members who would have ideas or who want to contribute can contact directly Norbert Roth, one of the driving forces behind this initiative.

Contacts are being made with Mr. E. Andreta, Director of the Directorate C.I. at the EU, to further explore collaboration between EU and CIRP. As an example, funding is being asked to support the continuing but time-consuming and painstaking effort of developing CIRP dictionaries in many languages.

These are just a few of the actions that are taking place to enhance the standing and the impact of our CIRP organization. I hope to be able to report on the positive outcome of those actions at the next General Assembly in Nancy. In the meantime I ask your full support and action to help realise these and many other action points.

The CIRP website is going to be renewed and enhanced. I would like to take this opportunity to express, on behalf of the entire CIRP community, our sincere thanks to Professor P. Bourdet and his staff for their untiring dedication to create out of the blue and maintain the CIRP website on a completely voluntary basis for so many years. Without him, there would simply not have been a CIRP website yet.

I am looking forward to meeting you all at the very special occasion of the 51st General Assembly of CIRP next August in Nancy, to celebrate together the 50th anniversary of our remarkable organisation we are all proud of to belong to.

Sincerely yours

Hendrik Van Brussel

President, 2000-2001

awards

It is a pleasure to announce that our Colleague **Günter Spur** was awarded the Georg-Schlesinger-Prize on June 23, 2000 by the Berlin city government. With this prize the government of Berlin every three years honors a scientist for outstanding achievements in the field of production engineering.

The prize bears the name of Professor Dr.-Ing. Georg Schlesinger, who became professor at the newly founded Institute for Machine Tools and Factories of the former Technological Institute Berlin-Charlottenburg in 1904.

Schlesinger's work includes developments in manufacturing technology, machine tool design, factory organization and standardization as well as to humanize the working environment. The Georg-Schlesinger-Prize honors the lifetime work of Prof. Spur as a scientific engineer not only for his distinguished technological and scientific research achieve-ments, but also for his social and humanitarian concern.

From 1965 until his retirement in 1997 Prof. Spur was professor and director of the Institute for Machine Tools and Factory Management of the Technical University Berlin. For 20 years he also was the director of the Fraunhofer-Institute for Production Systems and Design Technology, which he has founded. From 1991 until 1996 he was the founding rector of the Brandenburg Technical University of Cottbus. His scientific work covers a wide range of subjects in production technology. He made substantial developments for the improvement of machine tools and contributed

significantly to the successful introduction of numerical control and CADtechnology. He pioneered in the field work of automatisation and robot technology as well as in using DNC- and CNC-systems.

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We are pleased to announce that our colleague **Nam P. Suh** was awarded an honorary doctorate degree from the Royal Institute of Technology (KTH) of Sweden on November 10, 2000.

Professor Suh was also awarded the Mensforth International Gold Medal by the Institution of Electrical Engineers of the United Kingdom for his contributions to manufacturing science, technology and management.

In addition Professor Nam P. Suh is the recipient of the first Hills Millenium Award of the Institution of Engineering Designers of the United Kingdom.

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It is our pleasure to inform that our Colleague **George Chryssolouris** of the University of Patras in Patras, Greece will receive the 2001 SME Frederick W. Taylor Research Medal at SME's Annual Awards Banquet in Seattle, Washington on June 1, 2001

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It is our pleasure to inform that our Colleague **A.G. Mamalis** of the Technical University of Athens, has been elected as a member of the Ukranian Academy of Sciences.

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We are pleased to inform that on December 15th, 2000, the director of the Institute of Metal Forming (IBF), RWTH Aachen, our Collegaue **Reiner Kopp**, was awarded the honorary title of 'Dr. E.h.' by the TU Bergakademie Freiberg, Germany, in appreciation of his merits and achievements in the science and the technology of metal forming. Particular emphasis was given to the broad spectrum of his scientific publications, contributing to the solution of problems in basic as well as applied research, that also motivated the work of other scientists.

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It is our pleasure to inform that our Colleague **Antti Korhonen** has received the Eminent Scientist Award from RIKEN, The Institute of Physical and Chemical Research, Japan. The grant entitles him to three visits to RIKEN and is valid for three years.

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We are pleased to announce that our Collegaue **V.C. Venkatesh** has recently won two research Gold Medals at . 1) the Industrial Art and technology Exhibition (INATEX 2000) held at the University Of technology Malaysia, Johor Bahru, Malaysia, on June 2000 for his work on " Precision milling of small pockets on silicon", 2) the International invention Innovation Industrial Design and technology Exhibition (ITEX 2000) at the World Trade Center , Kuala Lumpur , Malaysia, on September 2000 for the same invention.

meetings seminars conferences

THE 34th CIRP INTERNATIONAL SEMINAR

ON MANUFACTURING SYSTEMS

MAY 16-18, 2001

ATHENS, GREECE

TOPICS

Manufacturing processes and process modelling. Manufacturing systems planning, control and scheduling. Manufacturing systems modelling and simulation. Life cycle design and manufacturing. Logistics and manufacturing data management. Virtual reality and manufacturing. Rapid prototyping. Lean production and agile manufacturing. Concurrent engineering and design methodology. Quality engineering. Manufacturing education and training.

INFORMATION

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2nd

INTERNATIONAL CONFERENCE

THE COATINGS

IN MANUFACTURING ENGINEERING

Hannover – Germany

May 9 - 10, 2001

MAIN TOPICS

. Coating tribology and wear

. Thin protective coatings in manufacturing processes,

tool life

. Optical coatings

. Coatings for medical applications

. Related applications, substrate modification and

pre-treatment

. Coatings characterisation an testing

. Future trends in coatings and thin films

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2 nd INTERNATIONAL CONFERENCE

EUROPEAN SOCIETY FOR PRECISION ENGINEERING AND NANOTECHNOLOGY

May 27th – 31st, 2001

TURIN, ITALY

Conference topics:

- mechanical ultra precision processes

- non-mechanical ultra precision processes
- ultra precision motion control
- environmental/vibration control in micro and nano-systems
- ultra precision machines-micro & macro
- precision engineering in aerospace technologies
- metrology and nanometrology
- optical and opto electronic developments
- engineering at the nanoscale
- material properties on the molecular and atomic scales
- engineered and structured surfaces – fabrication and characterisation
- nanofabrication and assembly
- Micro Electro Mechanical Systems (MEMS)
- Micro Opto-Electro Mechanical Systems (MOEMS)
- Silicon engineering
- Biotechnology and medical applications
- Optical engineering
- Modelling and simulation in micro and nanotechnologies

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ICME 2002

3rd CIRP International Seminar on

INTELLIGENT COMPUTATION IN

MANUFACTURING ENGINEERING

June 2002

Gulf of Naples area, 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

. Dianostics 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:

- expert 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

Contact :

Prof. Roberto Teti, ICME 2002 Seminar Chairman

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TOTAL QUALITY MANAGEMENT-

ADVANCED AND INTELLIGENT

APPROACHES

June 25 – 28,2001

Subotica – Palic ELITTE, Yugoslavia

TOPICS

- Business excellence models / BEM
- TQM & manufacturing management
- World class performance
- Attractive quality
- Robust engineering
- Six sigma model
- Intelligent quality tools and methods
- Virtual factory and virtual quality
- Intelligent metrology in manufacturing
- Intelligent and virtual CMM
- Business process improvement
- Breakthrough management
- Intelligent design for quality

Contact :

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2001 WORLD CONGRESS ON

MASS CUSTOMIZATION

and PERSONALIZATION

1-2 October, 2001

The Hong Kong University and Technology

TOPICS OF INTEREST

1. Business strategy of Mass Customization and Personalization

a. General Principles of Mass Customization and Personalization

b. Business implementation of Mass Customization and Personalization

c. Marketing aspects of Mass Customization and Personalization

d. One-to-one marketing

e. Theories

1. Mass Customization and Personalization in eBusiness

a. Web-based Mass Customizatio and Personalization Techniques

b. Success factors of Web-based Mass Customization and Personalization

c. Intermedaries for Mass Customization

d. Online Communities for Mass Customization

1. Product design for Mass Customization

a. Product family development

b. Product life cycle management

c. Design aspects

d. Product family structure and representation

1. Manufacturing for Mass Customization

a. Product design and configuration

b. Process planning and scheduling

c. Flexible manufacturing systems for Mass Customization

d. Agile Manufacturing

e. Supply Chain Management for Mass Customization

1. Consumer Behavior Issues

a. Buying behavior towards Mass Customized product

b. Cognitive modeling of the consumer behavior towards Mass Customization and Personalization

c. Consumer satisfaction in Mass Customization and Personalization

d. Profiling and extracting consumer preference

1. Information systems for MC and Personalization

a. Information systems structure

b. Product configuration

c. Data mining

d. Representation of company capability

e. Collaborative Filtering

f. CRM technologies and systems

g. Special aspects of MC planning (XML, agent technologies etc.)

CONTACT INFORMATION

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http://ami.ust.hk/MC01/Mcpc.htm

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Seminar on

'Methods for Process and Product

Development in Metal Forming'

September 25th to 28th, 2001

IBF (Institute of Metal Forming), RWTH

Aachen, Germany

The seminar is jointly organised by

the DGM (German Society for Materials Science) and

the VDEh (German Association of Iron and Steel

Engineers).

For further information please contact:

Deutsche Gesellschaft fuer Materialkunde

Hamburger Allee 86

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books and journals

RESTRUCTURING the MANUFACTURING PROCESS

Applying the Matrix Method

by Gideon Halevi

CONTENTS

Introduction

Overview of Computer Applications in Industry

The manufacturing Process

Basic Concepts and Objectives

The Computer Era and its Influence on the Manufacturing Process

Computers Integrated Manufacturing-CIM

Search for Solution

Overview of the Change of Manufacturing Objectives and Methods

General Survey of Proposed Methods

Brief Description of Selected Proposed Methods

Global Optimization Method

Method and Techniques to be Improved

Global Optimization Method Concepts

The Matrix Concept

Master Product Design

The Matrix System

Why a Matrix

The Matrix Concept

Example of The Matrix Concept

Process Plan Optimization

Master Product Design

Master Product Design-Example

Master Product Method

Master Product Design System-Product Specifacation

Master Product Design System-Concept Design

Master Product Design System-Detail Design

Management Activities Planning: How to Prepare Master Production Scheduling

Master Production Schedule

Master Production Schedule-Improvement

How to set product Selling Price: Economic lot Size, Maximum Profit

A Determination of Lot Size

Maximum Profit Criteria of Process Planning Optimization

How to Prepare MRP CPS Integration of CAPP and PM

Production Planning-MRP & CPS

The Matrix Method-Example

How to Determine Delivery Date

Generating Alternatives of Cost-delivery date, New Order

Generating Alternatives of Cost-Delivery Date, Working Shifts, Overtime, and Splitting

How to Control Shop Floor Activities Scheduling

Execution-Shop Floor control

Execution-Auxiliary Jobs

How to Control Quality

Product Variations and Failure Due to Processing

How to Establish Company’s Level of Competitiveness

Machine Performance Measurement

Reference Points

Machine Level of Competitiveness

Machine Level of Competitiveness-Examples

How to Execute Resource Planning

The Matrix Concept

Resource Planning

STP, ST. LUCIE PRESS

Catalog n° SL1213 October 1998, 300 pp., ISBN: 1-57444-121-3

$39.95

from the labs

Centre of Metal Structures Established in Aachen

Chaired by Prof. Dr. Ing. Dr. h.c. R. Kopp, the Centre of Metal Structures (Zentrum Metallische Bauweisen) has been founded in Aachen, Germany. Significantly funded by industrial partners, the ZMB will move into its newly erected, purpose built premises in the end of 2001. Under its roof, an interdisciplinary team of scientists belonging to a number of RWTH institutes will carry out joint research projects on industrial applications of metals in mechanical, civil and automotive engineering.

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IBF Participates in Process Simulation Competence

Centre founded at RWTH Aachen

On March 1st 2000 the 'SimPRO' Competence Centre for Process Simulation– started operations at RWTH Aachen. Financed by the Research Minister and industrial partners, nine institutes are cooperating on the further development of existing simulation models.

Together with the Institute of Physical Metallurgy and Metal Physics the Institute of Metal Forming (IBF) concentrates on "Numerical Simulation of Cold Forming of Steel and Aluminium Sheet Employing Metal Physics Models to Describe Texture Induced Anisitropy".

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SFB 570 „Distortion Engineering" at the University of Bremen

The Foundation Institute for Materials Science (IWT) and the University of Bremen, Germany, have started a new Collaborative Research Center (Sonderforschungsbereich, SFB) on January 1, 2001. The SFB 570 "Distortion Engineering" is, in addition to the SFB 372 "Spray-Forming," the second joint interdisciplinary research center located within the Faculty of Production Engineering at the University of Bremen and funded by the Deutsche Forschungsgemeinschaft (DFG), the central public funding organization for academic research in Germany. The maximum funding duration for the SFB is twelve years. Initial awards provide 10,2 Mio. DM for staff, infrastructure and equipment for the first three years.

As Collaborative Research Center are characterized by interdisciplinary cooperation between institutes, departments and faculties, production engineers, mathematicians and physicists of the University of Bremen join their efforts in investigating the phenomenon of distortion in manufacturing. So far, only single aspects have been researched to avoid distortion in metalworking. However, to control distortion effects when producing metal parts represents a major challenge in industrial manufacturing. Finishing operations to eliminate unwanted alterations of shape and dimension are usually extremely cost-intensive and impair considerably the efficiency of a manufacturing process. The Collaborative Research Center SFB 570 "Distortion Engineering" now focuses on a holistic approach to investigate distortion effects as a systems characteristic of an entire process chain, including the design, selection, production and properties of the material in use, as well as cutting and forming technologies and the final heat treatment.

For further information on the research program of the SFB 570 "Distortion Engineering" please, visit the following web-page: **www.iwt-bremen.de/sfb570/**

For additional information on Collaborative Research Centers please, refer to the web-page of the DFG: www.dfg.de/english/funding/forms/60_04e.htm

miscellaneous

The members of the Council during the inauguration of the new office in Paris, 9 rue Mayran, on January 2001

CIRP secretary Mrs. Chantal Timar-Schubert between the Technical secretary and the Secretary general.