# PROGRAM AT A GLANCE

**Saturday 15 May**
- 18:00 – 19:00: Registration - Aida Foyer
- 19:00 – 20:30: Welcome Reception - Eugenie Room

**Sunday 16 May**
- 8:00 – 8:45: Registration - Aida Foyer
- 8:45 – 9:15: Opening Session
- 9:15 – 10:30: Plenary Session # 1
- 10:30 – 11:00: Tea & Coffee Break - Aida Foyer
- Session 1A: NEXT GENERATION PRODUCT DEVELOPMENT
- Session 1B: FUNCTIONAL DESIGN
- 13:00 – 14:00: Lunch - Salon Vert
- Session 2A: DESIGN MODELS & INTERACTIONS
- Session 2B: CONCEPTUAL DESIGN & OPTIMIZATION
- 15:30 – 16:00: Tea & Coffee Break - Aida Foyer
- Session 3A: DESIGN KNOWLEDGE FRAMEWORKS
- Session 3B: DESIGN FOR DEVELOPING ECONOMIES & SMEs
- 17:30 – End of Afternoon Sessions

**Monday 17 May**
- 8:00 – 8:50: Registration - Aida Foyer
- 8:50 – 10:00: Plenary Session # 2
- 10:00 – 10:30: Tea & Coffee Break - Aida Foyer
- Session 4A: PRODUCT LIFE-CYCLE MANAGEMENT (PLM / PDM)
- Session 4B: DESIGN MANAGEMENT
- Session 4C: INTEGRATED DESIGN & PROCESS MODELLING
- 13:00 – 14:00: Lunch - Salon Vert
- Session 5A: VIRTUAL MODELS IN DESIGN & PRODUCTION
- Session 5B: HUMAN / ACTIVITY MODELLING & EDUCATION
- Session 5C: DESIGN TOLERANCING
- 16:30 – End of Afternoon Sessions
- 17:30 – 19:00: Egyptian Nights Dinner (Cairo Marriott Hotel)
- 19:15: Depart for Pyramids Sound & Light Show (Return to Hotel at 22:30)

**Tuesday 18 May**
- 8:00 – 8:30: Registration - Aida Foyer
- 8:30 – 10:00: Plenary Session # 3
- 10:00 – 10:30: Tea & Coffee Break - Aida Foyer
- Session 6A: COLLABORATIVE ENGINEERING DESIGN
- Session 6B: DESIGN TOLERANCING & SIMULATION
- 13:00 – 14:30: Lunch - Salon Vert
- Session 7A: INTELLIGENT SYSTEMS
- Session 7B: MACHINE DESIGN & CONTROL
- 17:30: Farewell - End of the 14th CIRP Design Seminar 2004

# REGISTRATION & SOCIAL PROGRAM

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Guest Speakers: Prof. Hamdy Elwany, Alexandria University and Dr. Ismail Serageldin, Director of the new Library of Alexandria: “Alexandria and Bibliotheca Alexandrina”
**TECHNICAL PROGRAM**

**Sunday 16 May**

*Opening Session *  8:45 –  9:15   Aida Ballroom

Prof. Dr. Hoda ElMaraghy - Chair of the International Scientific Committee, CIRP2004Dn Seminar

Introductory Remarks

Prof. Dr. Waguih ElMaraghy - Chair of the Organizing and Program Committees, CIRP2004Dn Seminar

The 14th CIRP Design Seminar  2004

Prof. Dr. Moufid Shehab – Minister of Higher Education & Scientific Research (Egypt)

Official Welcome to Egypt and Seminar Opening

Prof. Dr. Michel Veron – President, CIRP (Int’l Institution for Production Engg. Research)

CIRP Activities Towards Developing Countries

**Plenary Session #1**  9:15 – 10:30   Aida Ballroom

**Science & Technology in Egypt**

Prof. Dr. Fawzi A.A. Elrefaie

President, Academy of Scientific Research & Technology (ASRT), Egypt

The Industrial Modernization Plan

Dr. Slim Tlatli, Executive Director

Industrial Modernization Centre, Egypt

Evolutionary Design for Developing Countries

Prof. Mitchell M. Tseng

Hong Kong University of Science & Technology, Hong Kong

10:30 – 11:00  Tea & Coffee Break - Aida Foyer

**Sunday 16 May**  11:00 – 13:00  Session 1A

**NEXT GENERATION PRODUCT DEVELOPMENT**

Chair: Prof. T. Tomiyama  Co-Chair: Prof. B.R. Meijer

**Directions of Next Generation Product Development**

Tetsuo Tomiyama, Bart R. Meijer

Delft University of Technology, The Netherlands

**What-If’ Design As An Integrative Method In Product Design**

van Houten, F.J.A.M., Lutters, D.; University of Twente

The Netherlands

**Self Organization In Design**

Bart R. Meijer, Delft University of Technology, The Netherlands

**Extended Design For X (DFx) Methodology For Digital Consumer Product Development**

Koichi Ohtomi, Toshiba Corporation, Japan

**Sunday 16 May**  11:00 – 13:00  Session 1B

**FUNCTIONAL DESIGN**

Chair: Prof. P. Gu  Co-Chair: Dr. S. Ahmed

**Reusing Design Knowledge**


**ADAPTEX - A Methodology To Manage And Extend Product Life Cycles Through The Implementation Of Strategic Product Upgrades**

J.C. Sand, P.Gu, The University of Calgary, Canada

**An Innovative Design Method And Tool For Structural And Functional Analysis**

H. Falgarone, N. Chevassus

EADS CCR (Corporate Research Center), France

**Development Of Integrated Design System For Structural Design Of Machine Tools**

Myon-Woong Park, Young-Tae Sohn

Korea Institute of Science and Technology, Korea

13:00 – 14:00 Lunch - Salon Vert
Sunday 16 May 14:00 – 15:30  Session 2A
DESIGN MODELS & INTERACTIONS
Chair: Prof. T. Kjellberg  Co-Chair: Prof. M.J. Wozny

Interaction Of Requirements In Manufacturing System Development - A Case Study
V. Rogstrand, T. Kjellberg
Royal Institute of Technology, KTH, Sweden
On The Merging Of Geometric Models Based On Hierarchical Context
J.A. Knowlton, M. J. Wozny, RPI, USA
Model infrastructures and human interaction in a stereo table environment
T. Kjellberg1 (2), C. Lindfors1, M. Larsson1, J. Gustafsson2
1Computer Systems for Design and Manufacturing, 2Industrial Metrology, Department of Production Engineering, Royal Institute of Technology (KTH), Sweden

Sunday 16 May 14:00 – 15:30  Session 2B
CONCEPTUAL DESIGN & OPTIMIZATION
Chair: Prof. D. Brissaud  Co-Chair: Prof. B. Yannou

Supporting Problem Expression Within A Co-Evolutionary Design Framework
D. Brissaud, P. Lonchampt, G. Prudhomme
University of Grenoble, France
A Framework For An Enhanced Mechanical Concept Exploration - Application To The Vibro-Acoustic Behavior Of A Car Subframe
Bernard Yannoua, Abdelbasset Hamdiab, Eric Landeb
aEcole Centrale Paris-Laboratoire Génie Industriel, France, bService des Prestations Acoustiques et Vibrations
Consistency Measures Of Design Spaces Computed By Constraint Programming Methods
Bernard Yannou, Ghassen Harmel
Ecole Centrale Paris-Laboratoire Génie Industriel, France

Sunday 16 May 16:00 – 17:30  Session 3A
DESIGN KNOWLEDGE FRAMEWORKS
Chair: Prof. J. Shah  Co-Chair: Dr. T. Ohashi

CROSSTALK - A Collaborative Framework For Electronic-Mechanical Product Design
Michael Montero1, Noe Vargas2, Paul Wright3, Jami Shah4
1University of California at Berkeley, USA, 2Arizona State University, USA
Knowledge Chain Search System For Manufacturing Database, Supporting The Process Chain Of Total Manufacturing
Takahiro Ohashi, Shigeko Ohtani And Toshio Kojima
National Institute of Advanced Industrial Science and Technology, Japan
A Framework Of Product Styling Platform: Case-Based Styling Indexing
Richard Y. K. Fung1, Steven PY Chong2
City University of Hong Kong, China

Sunday 16 May 16:00 – 17:30  Session 3B
DESIGN FOR DEVELOPING ECONOMIES & SMEs
Chair: Prof. C. Rizzi  Co-Chair: Prof. G. Colombo

PLM Paradigm In A SME: Total Quality Management Procedures And Process Modeling Techniques
U. Cugini1, A. Ramelli1, C. Rizzi2, M. Ugolotti1
1 Politecnico di Milano, Italy, 2Università di Bergamo, Italy
Design Method In The Context Of Developing Countries: Application To Small-Scale Food Processing Units
Marouzé Claude1, Giroux François2; 1 Cirad-Amis UMR ITAP (Information et Technologies pour les Agro-Procédés), France, 2 Cirad-Amis & ENSIA-SIARC, France
A KBE Application To Automate Heat Exchangers Design In A SME
Colombo G.1, Colombo D., Cosmai G.2, And Pulli M.1
1 Politecnico di Milano, Italy, 2RuleStream Corp., Italy

15:30 – 16:00  Tea & Coffee Break - Aida Foyer
Monday 17 May

Plenary Session #2  9:00 – 10:30  Ballroom
Chair: Prof. F.J.A.M. van Houten      Co-Chair: Prof. M. Tseng

Economic Growth, Business Innovation and Engineering Design
Gunnar Sohlenius, Leif Claussen and Ann Kjellberg;
The Royal Institute of Technology – KTH, Sweden

Efficient Product Data Sharing In Collaboration Life Cycles
Frank-Lothar Krause, H. Hayka, B. Pasewaldt;
Fraunhofer Institute for Production Systems and Design Technology, Germany

Knowledge Management For A Cooperative Design System
Serge Tichkiewitch¹, Bruno Radulescu¹², George Dragoi², Kusol Pimapunsri¹²³ (¹Domaine Universitaire, France, ²University “Politehnica” of Bucharest, Romania, ³King Mongkut Institute of Technology North Bangkok, Thailand)

Monday 17 May  11:00 – 13:30  Session 4A
PRODUCT LIFE-CYCLE MANAGEMENT (PLM / PDM)
Chair: Prof. F.L. Krause      Co-Chair: Prof. H.J. Pels

Life Cycle Product Support In The Digital Age
J. Niemann, E. Westkaemper; IPA, Univ. of Stuttgart, Germany

Holistic Product Condition Model - Managing Product Condition Information As An Integrative Factor In Product Life Cycle
Frank-Lothar Krause, Christian Kind, Holger Jungk
Technical University Berlin, Germany

Federated Product Data Management In Multi Company Projects
H.J. Pels, Technische Universiteit Eindhoven, The Netherlands

Step PLCS For Design And In-Service Product Data Management -Implementation Case Study
R. Sharma, W. Bowleand, J. Gao; Cranfiled University, U.K.

Efficient Maintenance Of Complex Machine System Based On Augmented Reality As Part Of The Product Lifecycle Management
R. Stelzer, W. Steger, B. Saske, TU Dresden, Germany

Monday 17 May  11:00 – 13:30  Session 4B
DESIGN MANAGEMENT
Chair Prof. R. Roy:      Co-Chair: Prof. M.Cantamessa

Requirements Management For The Automotive Extended Enterprise: The Next Evolution In Digital Product Development
R. Roy, C.I.V. Kerr, P.J. Sackett; Cranfield University, U.K.

*Fujitsu Info Software Technologies Ltd, **Osaka University, Japan, ***Kobe University, Japan

Design Iterations In A Geographically Distributed Design Process
T. Boudouh, D.-C. Anghel, O. Garro
Université de Technologie de Belfort-Montbéliard, France

Using Correlation Between Design Structure Matrices To Study The Structure Of The Value Chain
M. Cantamessa, M. Milanesio, E. Operti
Politecnico di Torino, Italy

Pitfalls Of Engineering Change - Change Practice During Complex Product Design
T. Jarratt, C. Eckert, P.J. Clarkson; University of Cambridge, U.K.

Monday 17 May  11:00 – 13:30  Session 4C
INTEGRATED DESIGN & PROCESS MODELLING
Chair: Prof. D. Cavallucci      Co-Chair: Prof. S. Metwalli

Problem Formulating For Inventive Design: Application To Injection Molding Technology
T. Eltzer, D. Cavallucci, N. Khomenkho, P. Lutz, E. Caillaud
LICIA-INSA Strasbourg, France

An Integrated Approach Using Optimization Methods And Simulation In Maintenance Strategies Analysis
M.A. Jamali*, O. Roux**, D. Ait-Kadi*, A. Artiba**  
*Université Laval, Canada, **Département Gestion de Production et des Opérations, CREGI, FUCAM, Belgique  
A Platform For Installation Planning Of Machine Tools - A Case Study  
M.F. Zaeh, F. Graetz, H. Rashidy, Institute for Machine Tools and Industrial Management (iwb), Germany  
Application Of A Methodology For Selection And Evaluation Of PLM Tools In Product Development Process  
Matteo Benassi¹, Monica Bordegoni¹, Umberto Cugini¹, Gaetano Cascini² (¹Politecnico di Milano, Italy, ²Università degli Studi di Firenze, Italy)

13:30 – 14:30 Lunch - Salon Vert

Monday 17 May 14:30 – 16:30 Session 5A  
VIRTUAL MODELS IN DESIGN & PRODUCTION  
Chair: Prof. P. Dépincé Co-Chair: Dr. G. El Khayat

A Haptic Virtual Prototyping Environment For Design And Assessment Of Gearshifting Behaviour  
M. Tideman, M.C. Van Der Voort, F.J.A.M. Van Houten  
University of Twente, The Netherlands  
Offline Cycle Time Reduction Using Hybrid Virtual Assembly Plants - A Mechatronic Approach  
M.F. Zaeh, G.M.W. Wuensch, C. Poernbacher, U. Munzert  
IWB, Germany  
Virtual Manufacturing: Tools For Improving Design And Production  
Philippe Dépincé¹, Damien Chablat¹, Peer-Oliver Woelk² (¹Ecole Centrale de Nantes, Université de Nantes, France, ²Institute of Production Engineering and Machine-Tools (IFW), Germany)

Virtual Product Design Teams – Methodological Framework And Operational Tool  
Nermine Harraz⁰, Ghada El Khayat⁰cj  
⁰Alexandria University, Egypt, ‡Arab Academy for science and technology and maritime transport, Egypt, ‡Ecole Polytechnique de Montreal, Canada

Monday 17 May 14:30 – 16:30 Session 5B  
HUMAN / ACTIVITY MODELLING & EDUCATION  
Chair: Prof. A. Bernard Co-Chair: Prof. D. Choulier

Human Modeling In Industrial Design  
M. Shahrokhi, M. Pouliquen, A. Bernard  
IRCCyN - Ecole Centrale de Nantes, France  
Modelling Of Manufacturing Process Complexity  
Jill Urbanic, Waguih ElMaraghy  
University of Windsor, Canada  
Stakes, Criteria And Proposals For A Training To Innovating Design  
Pierre-Alain Weite*, Denis Choulier*, Fabienne Picard**  
*Laboratoire M3M, CID, **Laboratoire RECS, Université de Technologie de Belfort-Montbéliard, France  
Couples Of Design Acts: A Way For Indentifying Elementary Design Tasks  
Denis Choulier  
Université de Technologie de Belfort-Montbéliard, France

Monday 17 May 14:30 – 16:30 Session 5C  
DESIGN TOLERANCING  
Chair: Prof. L. Laperrière Co-Chair: Prof. M. Gadallah

Predicting Design Quality Through Sensitivity Modelling  
L. Laperrière, W. Ghie, A. Desrochers  
Université du Québec à Trois-Rivières, Canada  
Computer Aided Tolerancing - Solver And Post Processor Analysis  
S. Samper, J. P. Petit; Domaine Universitaire, France  
A New Method Of Design Integrated Tolerancing  
Pascal Hernandez, Max Giordano, Gaétan Legrais  
Universite de Savoie, France
Model And Optimisation Of A Machining Process Thanks To The Concept Of Elementary Geometric Minimum Datum (EGRM)
Daniel Duret, Alain Sergent, Ahmad Legha
University of Savoie, France

Tuesday 18 May

Plenary Session #3 8:30 – 10:00 Ballroom
Chair: Prof. Dr. W. ElMaraghy
Co-Chair: Prof. Dr. Sayed M. Metwalli

Regionalism or Globalization?
Guest Speaker: Ambassador Mohamed Gamal El-Din Bayoumi

Engineering Design and Education in this Global Village
Prof. Sayed M. Metwalli; Mechanical Design & Production
University, Cairo University, Egypt

Design and Business in the Global Village – The Oriental
Weavers Success Story
Mr. Mohamed F. Khamis; Chairman, Oriental Weavers - UNIDO’S “Africa’s Innovative Company” award in the large scale industries sector in 1997

10:00 – 10:30 Tea & Coffee Break - Aida Foyer

Tuesday 18 May 10:30 – 13:00 Session 6A
COLLABORATIVE ENGINEERING DESIGN
Chair: Prof. O. Garro  Co-Chair: Prof. D. Choulier

Management Of Engineering Design Process In Collaborative Situation
V. Robin¹, B. Rose², P. Girard¹, M. Lombard²
¹University Bordeaux 1, France, ²Vandoeuvre-lès-Nancy, France

Classification And Parameterization Of Bilateral Supply Chain Cooperations
M.F. Zaeh, C. Habicht, P. Neise; IWB - TU Muenchen, Germany

A Two-Levels Based Approach For Collaborative Design Process Analysis

Tuesday 18 May 10:30 – 13:00 Session 6B
DESIGN TOLERANCING & SIMULATION
Chair: Prof. M. Veron  Co-Chair: Prof. A. Bernard

Automatic 3D Digitizing - A Visibility Based Approach
Sébastien Remy¹, William Derigent¹, Alain Bernard², Gabriel Ris¹, Michel Veron¹ (¹University of NANCY, France, ²Ecole Centrale de NANTES, France)

Optical Methods For Reverse Engineering Of Human Faces
R. Ferrandes, L.M. Galantucci, G. Percoco
Politecnico di Bari, Italy

Programming Tactile Probe Trajectory for Digitalization
Z. Weiss, and M. Pankowski
Poznan University of Technology, Poland

Integration Of Costs Models In Design And Manufacturing
Nicolas Perrry, Magali Mauchand, Alain Bernard
IRCCyN, France

The Pair Character Of Working Surfaces – Significant Elements Of The Contact And Channel Model C&CM
A. Albers, N. Burkardt, M. Ohmer; Univ. Karlsruhe, Germany

13:00 – 14:30 Lunch - Salon Vert
Towards A Design Methodology For Self-Optimizing Systems
Jürgen Gausemeier, Andreas Schmidt, Ursula Frank, Daniel Stefen; Heinz Nixdorf Institute, Germany

Gene-Engineering Based Innovation And Reverse Deduction Of Virtual Chromosomes Of Manufacturing Products
Ke-Zhang Chen¹, Xin-An Feng², Xiao-Chuan Chen³
¹The University of Hong Kong, Hong Kong, ²Dalian University of Technology, China, ³Donghua University, China

Product Genetic Engineering,
Kezheng Huang, Hongwu Chen, Yandong Wang, Z. Song, L. Lu; Shandong University, China

Maintainability Evaluation Using Fuzzy Design Data
Corneliu-Alexandru Slavila¹², Christophe Decreuse¹, Michel Ferney¹, Ion Ungureanu² (¹Université de Technologie de Belfort-Montbéliard, France, ²Universitatea din Pitesti)

Minimal Repair And Replacement Strategy For Failure Prone Production Systems
Souad Hanani¹, Daoud Ait-Kadi¹, and Bahia Benchkroun²
¹Université Laval, Canada, ²Mohammadia School of Engineers, Rabat, Morocco

Modeling Of Grind-Hardening Process Using Finite Element Analysis

Manufacturing Driven Design of Sculptured Surfaces
A. Barrari*, H.A. ElMaraghy***; (¹ University of Western Ontario, ² University of Windsor, Canada)

The Structured Design Of A Reconfigurable Control Process
ElSayed ElBeheiry, Waguih ElMaraghy, Hoda ElMaraghy
University of Windsor, Canada

Modelling And Simulation Of A Machining Centre For High Speed Milling
R. Bedini*, A. Fortunato**, G. Tani**, G. Andorlini*** (¹Florence University, ²Bologna University, Italy, ³Breton S.p.A.)

Model Validation Of A Machining Centre For High Speed Milling
R. Bedini*, A. Fortunato**, G. Olmi**, L. Orazi***, G. Tani** (¹Florence University, ²Bologna University, Italy, ³Modena-Reggio Emilia University)

NLSoft: A New Design and Simulation Tool of Nonlinear Controllers Based on Feedback Linearization Technique
Sébastien Blais¹, Azeddine Kaddouri¹, Mohsen Ghribi¹, Ouassima Akhrif²; ¹Université de Moncton, Canada, ²École de technologie supérieure, Canada.

Multi-Tasking Machine Tools And Their Impact On Process Planning
Bob Hedrick¹, R. Jill Urbanic², Waguih ElMaraghy²; ¹CNC Software Inc., Canada, ²University of Windsor, Canada.

Six Sigma Quality And Change Management
Frank W. Voehl¹, Ahmad K. Elshennawy², and Nael Aly³; ¹ The Harrington Group, Orlando, Fl. ² University of Central Florida, Orlando, Fl. ³ California State University – Stanislaus, Turlock, CA.

Industrial Laser Technology, Current Advances In Japan And Future In Egypt
K.A. Ghany, M. Kabasawa*; Central Metallurgical Research and Development Institute, Egypt.