Final Report

Division for Industrial Engineering and Computer Sciences
École des Mines de Saint Etienne
INCOM’2006 brought together **783** participants (including **239** industrial representatives)
INCOM’06: a World Wide Symposium

57 countries were represented via the contributors

783 attendees
  544 academics
  239 industrial representatives

98 sessions in the final program

42 industrial exhibitors

2665 pages of symposium proceedings with 950 authors
INCOM’06: Highly Selective Scientific Event

603 complete papers submitted

3 reviews minimum per paper

2000 reviews received (approximately)

732 reviewers participated in the peer review process

375 papers accepted after the peer review process

38% of submissions were rejected at this step
Objectives and Principles

Three main principles of INCOM’2006

- To focus topics on **real problems** in Manufacturing systems
- To assure **quality scientific expertise**
- To obtain substantial academic and industrial participation for a much **larger discussion** and **dissemination** of results
Scientific Challenges for INCOM’2006

The symposium stressed all the challenges that arise from new paradigms of Intelligent Manufacturing System and Supply Chain Management. Design, manufacturing, maintenance, distribution and associated services are considered in building integrated methods and tools of an Intelligent Factory of the Future.

Symposium Without Frontiers Between Disciplines

INCOM’s philosophy was simple: put industrial problems in the forefront and invite all possible players in Automatic Control, Computer Science, Management Science, Operational Research and Industrial Engineering, to regard and offer solutions. This approach succeeded in making of INCOM’06 one of the major scientific events in Manufacturing Systems and Logistics of 2006.

Symposium as a Bridge for Research and Industry

One of the goals of INCOM’06 was to create an effective bridge between research and industry. The target was to provide industrial as well as academic leaders with a stimulating occasion to initiate fruitful relationships and ambitious projects. Industrial papers were included in academic sessions, and 3 additional business related meetings were programmed. The industrial and scientific exhibition offered a wonderful opportunity to explore and compare the latest innovations.
Academic and industrial leaders meet together at INCOM’06
Organizers and Committees

An exceptional International Program Committee (IPC) worked hard to insure that the process was highly selective and professional

79 IPC Members from 29 Countries

Pertinent principles of IPC formation:

- All INCOM’s topics are supervised by leading specialists
- Important international journals are represented
- Major regions of the World are represented
- Principal scientific sponsors are represented
Conference chairs:
Honorary President: Robert GERMINET, Director of the ENSM.SE, France
General Scientific Chair: Alexandre DOLGUI, Director of the Division for Industrial Engineering and Computer Sciences of the ENSM.SE, France

International Program Committee (IPC):
IPC Chair: Gérard MOREL, Université Henri Poincaré, France
IPC Scientific Co-Chair: Shimon Y. NOF, Purdue University, USA
IPC Industrial Co-Chair: Timothy L. JOHNSON, General Electric, USA

Pedro ALBERTOS, Spain
Abdelhakim ARTIBA, Canada
Ronald G. ASKIN, USA
Zbigniew A. BANASZAK, Poland
Miryam BARAD, Israel
John J. BARTHOLDI, III, USA
Mireille BAYART, France
Peter BERTOK, Australia
Jean-Paul BOURRIERES, France
Glen BRIGHT, South Africa
Luis M. CAMARINHA-MATOS, Portugal
Sergio CAVALIERI, Italy
David CHEN, France
Lawrence CORBETT, New Zealand
Yves CRAMA, Belgium
Stéphane DAUZERE-PERES, France
Alain DELCHAMBRE, Belgium
Heinz-H. ERBE, Germany
Erdal EREL, Turkey
Duncan McFARLANE, United Kingdom
Jean-Marc FAURE, France
Florin-Gheorghe FILIP, Romania
Gerd FINKE, France
Peter FLEMING, United Kingdom
Adina Magda FLOREA, Romania
Georg FREY, Germany
Susumu FUJII, Japan
Stanley B. GERSHWIN, USA
Rémy GLARDON, Switzerland
Ken GOLDBERG, USA
Bernard GRABOT, France
Peter P. GROUMPOS, Greece
Robert W. GRUBBSTRÖM, Sweden
Jatinder N. D. GUPTA, USA
Jean-Claude HENNET, France
Sheue-Ling HWANG, Taiwan
Benoît IUNG, France
Zhibin JIANG, China
Toshiya KAIHARA, Japan
Anatolii F. KLEIMENOV, Russia
Vladimir V. KULBA, Russia
Andrew KUSIAK, USA
Pierre LADET, France
Jay LEE, USA
Genrikh M. LEVIN, Belarus
Alain MARTEL, Canada
László MONOSTORI, Hungary
Edward NAWARECKI, Poland
Andrew Y.C. NEE, Singapore
Christopher O'BRIEN, United Kingdom
Hervé PANETTO, France
Anatoly PASHKEVICH, Belarus
Carlos E. PEREIRA, Brazil
Joao J. PINTO FERREIRA, Portugal

Jean-Marie PROTH, France
Antonio RUANO, Portugal
Hubert ROTH, Germany
Subhash SARIN, USA
Alexander SMIRNOV, Russia
Suress SETHI, USA
Johan STAHRE, Sweden
Marcel STAROSWIECKI, France
Marco TAISCH, Italy
Vince THOMSON, Canada
Paul VALCKENAERS, Belgium
François VERNADAT, Luxembourg
Agostino VILLA, Italy
Chengen WANG, China
Larry WHITMAN, USA
David J. WILLIAMS, United Kingdom
Hans WORTMANN, The Netherlands
Xiaolan XIE, France
Oleg ZAIKIN, Poland
Janan ZAYTOON, France
Marek ZAREMBA, Canada
Detlef ZUEHLKE, Germany
National Organizing Committee (NOC) Chair: Xavier BOUCHER 
ENSM.SE, France

NOC Industrial Co-Chair: Robert RONCHI 
ST Microelectronics, France

- Frédéric GRIMAUD, head of the logistic team
- Marie-Line BARNEOUD, secretary
- Marie-Agnès GIRARD, in charge of the exhibition
- Lucien VINCENT in charge of the industrial workshops
- Laurent VERCOUTER and Grégory SIX, Webmasters

Members of the National Organizing Committee (NOC):

Philippe BEAUNE, Michel BEIGBEDER, Olivier BOISSIER, Patrick BURLAT, Jean-François CHAMBON, Annie CORBEL-BOURGEAT, Xavier DELORME, Marie-Agnés GIRARD, Jean-Jacques GIRARDOT, Frédéric GRIMAUD, Philippe JAILLON, Roland JEGOU, Patrick LYONNET, Eric MARCON, Hélène MARIAN, Frédérique MAYER, Antoine PAUZE, Marc ROELENS, Xavier SERPAGGI, Grégory SIX, Rosario TOSCANO, Laurent VERCOUTER, Lucien VINCENT.
Sponsors and Partners

12th IFAC symposium INCOM’2006 was co-sponsored by prestigious international scientific associations: IFIP, IFORS, IEEE, etc.

IFIP - International Federation for Information Processing

IFORS - International Federation of Operational Research Societies

IEEE - Institute of Electrical and Electronics Engineers
In total: sponsored by 22 scientific institutions from all over the World
Major international partners

IFAC MAIN SPONSOR
IFAC Technical Committee 5.1 on Manufacturing Plant Control

IFAC Technical Committees:

TC 1.3 on Discrete Event Dynamic Systems
TC 2.4 on Optimal Control
TC 3.3 on Computers and Telematics
TC 4.1 on Components and Instruments
TC 4.2 on Mechatronic Systems
TC 4.4 on Cost Oriented Automation
TC 4.5 on Human Machine Systems
TC 5.2 on Manufacturing Modelling for Management and Control
TC 5.3 on Enterprise Integration and Networking
TC 5.4 on Large Scale Complex Systems
TC 9.2 on Social Impact of Automation

IEEE
IEEE Robotics and Automation Society
IEEE Industrial Electronics Society
IEEE Section France

IFIP
Technical Committees and Working Groups:
TC 5 on Computer Applications in Technology
TC 7 on System Modelling and Optimization
WG 5.3, Computer Aided Manufacturing
WG 5.5, Cooperation Infrastructure for Virtual Enterprises and electronic Business
WG 5.7, Integration in Production Management
WG 5.12, Architectures for Enterprise Integration
WG 7.4, Discrete Optimization

IFORS
International Federation of Operational Research Societies
European Association of Operational Research Societies
French Society of Operational Research

IMS
IMS World-Wide
European IMS-NOE
IMS Project PROMISE
European projects

European Co-ordination action "European Virtual Institute on Collaborative Demand & Supply Network" (CODES.NET)

European INTAS project "Scheduling for modern manufacturing, logistics and supply chains"

European Network of Excellence for Innovative Production Machines and Systems (I*PROMS)

European Network of Excellence for Interoperability Research for Networked Enterprises Applications and Software (INTEROP)

Other scientific partners

I4e2, SEE, cluster Gospi, GDR MACS/CNRS, EEA
A successful network of organizing partners

We wish to express our gratitude to our financial partners. First, because they believed in our mission. Later, their subvention has made it all possible.

We profoundly thank our organizing partners. The quality of the program we offered was also due to their investment and support.
Pre-Symposium Agenda

♦ Idea of INCOM in Saint Etienne        April 2003
♦ Approval by IFAC TC 5.1               April 2004
♦ Demand to IFAC National Committee    July 2004
♦ IPC and NOC constituted               September 2004
♦ Approval by IFAC Board               September 2004
♦ Search for sponsors                  November 2004
♦ Call for papers (e-mail)             November 2004
♦ Web site                              November 2004
♦ Flyer sent (16,000 copies)           December 2004
♦ Posters (1000 copies)                December 2004
♦ Tracks and track chairs              January 2005
♦ 603 Papers received November 2005
♦ Establish on-line review November 2005
♦ Peer review process Nov 2005 – Feb 2006 with 731 referees
♦ Call for industrial participation February 2006 (10,000 copies)
♦ Preliminary program March 2006
♦ Preprints (3 volumes, 2665 pages) April 2006
♦ Final program April 2006
♦ Press releases Jan - May 2006
♦ Press conferences March 20, May 11, 2006
♦ Logistics Jan - May 2006
Symposium Program

Scope and Topics

- Logistics
- Mechatronic systems
- Reconfigurable production systems
- Supply networks
- Optimization
- Metaheuristics
- Simulation
- PLM
- Information systems
- E-business
- Web-Intelligence
- Artificial intelligence
- Multi-Agents Systems
- Holonic systems
- e-Solutions to Plan and Design of Manufacturing Systems
- Facilities Planning and Materials Handling
- Inventory Control, Production Planning and Scheduling
- Monitoring, Diagnosis and Maintenance of Manufacturing Systems
- Web-enabled Manufacturing Control and Wireless Automation
- Process Modeling and Information Systems within the Extended Enterprise
- Socio-technical and Cognitive Aspects of Automation
- Intelligent Manufacturing Systems Modeling and Applications
- Distributed Systems and Multi-agents Technologies
- Discrete Event Systems Simulation in Manufacturing
- Operational Research Applications in CAD/CAM/CAE
24 Academic tracks and 3 industrial workshops (98 sessions)

3 main scientific areas (90 sessions, 387 presentations)

- **Information Systems, Control and Interoperability**

- **Industrial Engineering**

- **Operational Research**
  Advances in Scheduling, Production Planning, Inventory Control, Transportation and Logistics, Location and Dynamic Pricing, Metaheuristics and Soft Computing, Simulation in Industrial Engineering, and Engineering Techniques Applied to Healthcare.
**Associated industrial workshops**

35 presentations

**EMM’06** - 4th European Mechatronics Meeting - 18th and 19th of May, 2006
Organized by THESAME, ENISE, and ENSM.SE with support from CETIM

"**Integrated Design and Mechatronics**"

**BP’06** - Business Process Management Workshop - 18th of May, 2006
Coordinated by THESAME network together with ENSM.SE.

"**Management of Business Processes: Connecting Strategic and Operational Management**"
- Business Processes and Scorecard, Decision-aid Tools, Semi-Automated Execution of Informational Processes, and BAM tools.

**JT’06** - Architecture and Management of Information Systems - May 19th, 2006
Organized by PPRA together with itSMF France and the Industrial Club of Information System Planners

"**Effective and adaptable information system : architecture and management**".
- IT System Performance, Agility and Evolution of IT Systems, ITIL methodology, and Method of IT Urbanism.
Seven Keynote Speeches

ROBOTICS, AGENTS, AND E-WORK: THE FUTURE OF PRODUCTION
Pr. Shimon Y. Nof, Purdue University, USA

INTEROPERABLE ENTERPRISE SYSTEMS
Pr. François B. Vernadat, European Commission, Luxemburg

HOW DO QUANTITY AND QUALITY REALLY INTERACT?
Dr. Stanley B. Gershwin, Massachusetts Institute of Technology, USA

SCHEDULING: NEW TRENDS IN INDUSTRIAL ENVIRONMENT
Dr. Jean-Marie Proth, INRIA, France

DISTRIBUTED REAL-TIME EMBEDDED SYSTEMS
Pr. Carlos Eduardo Pereira, Federal University of Rio Grande do Sul, Brazil

DATA MINING IN DESIGN OF PRODUCTS AND PRODUCTION SYSTEMS
Pr. Andrew Kusiak, University of Iowa, USA

COLLABORATIVE NETWORKS
Pr. Agostino Villa, Politecnico di Torino, Italy
Presentations

**443 presentations were scheduled:**
- **375** papers accepted after the peer review process
- **61** invited industrial presentations
- **7** keynote speeches

**429 presentations made** (about 3.1 % of non-shows only).

**by category**
- **341** oral presentations made in the scientific sessions
- **46** scientific posters were displayed
- **35** lectures were given in the 3 industrial workshops
- **7** keynote speeches were presented
Exhibition
42 academic and industrial exhibitors

AD-Ultima  Gold Certified of the Microsoft Dynamics AX (Axapta) solution, ERP intended for small and medium company
AGIIR  Information Technologies – Web technology
AGILITIUM  BPM - BAM. Monitoring and supervision of Processes.
Alpes DEIS  Mechatronic product design, Man Machine Interface Simulation, Weather station manufacturer.
BOC  Enterprise and process modeling, IT governance, Information System Urbanism.
BV Associates  Technical audit, Management consulting, Operations management, Service level agreement, Industrialization, Infrastructure management, Deployment, etc.
CASEWISE  Enterprise modeling products, Audit and continually enhance complex operating processes and IT infrastructures.
CLUB ERA  Processes based MES, Network of Software editors.
Club des Urbanistes de systèmes d'information  Modeling Information Systems, Alignment on firms strategy, Urbanism of information systems.
COURBON  Global integration of automated and computerized systems, MES software design (PRODUCIM and PHARMACIM).
CREATIVE IT  Qubes software MES, SPC quality process manufacturing execution system.
DASSAULT Systèmes  Dassault Systèmes leader on Product Lifecycle Management.
DEMATIC  Software solutions and integration of technologies applied to logistic systems
EBM Web Sourcing  Collaborative solutions for SMEs ecosystems, Collaborative business processes implementation.
EFS  Engineering of mechanical and mechatronics solutions.
ENISE, Ecole Nationale d’Ingénieurs de St Etienne.
Groupe JP FAUCHÉ  Engineering of mechanical and mechatronics solutions.
ILOG  ILOG delivers software and services that empower customers to make better decisions faster and manage change and complexity.
IMdR-Sdf  Institut pour la Maitrise des Risques - Sureté de Fonctionnement.
ITHEC International  Maintenance and Production Management software.
itSMF France  Service Management Forum, Standards for IT Division processes.
KU LEUVEN  MES, Manufacturing Control, Multi-agent systems, Holonic systems, Benchmarking.
Loire-Numérique  Professional association of digital economy, Information and Communication Technologies.
LOTIM Télécom, LOTIM Telecom is a subsidiary of AXIONE European leading company on the Broadband Telecommunications PPP market.
MÉCALOIRE, Innovation network in Mechanical engineering.
OPTIMEL, Low pressure molding process. Tight sealing of electronics. Molding materials, machines, and tools.
ORESYS Business and IT Consulting, Leader in Project Management, Enterprise Architecture Consulting.
OSIATIS Information systems: Audit, Architecture, Implementation, ITIL deployment.
PORÁ New optics and photonics technologies for industry.
PPRA Association for industrial development and innovation in the region Rhône Alpes.

QPIT BV QUISM, a leading ITIL-web based Help Desk and IT Service management suite.
QUALIAC ERP, Process Industry, Manufacturing.
Rb3d Intelligent tools and Mechatronic developments for the medical, aeronautical, and automobile sectors.
SAS Institute Solutions in Business Intelligence. SAS is the market leader in providing a new generation of business intelligence software and services.
SEGULA Simulation and Optimization of processes, Scheduling and Production management, Supply Chain management and Industrial performance.
SENSOREX Sensors, Micro-electronics, Embedded electronics.
SIMCORE Logistic decision support, Simulation software, Integrated systems.
SIMPARTNERS Simulation and Optimization, Online decision making.
TELEMAQ SARL Innovation engineering, Outsourced R&D, and Mechatronics engineering.
THESAME Industrial and Academic network in Mechatronics.
UGS Tecnomatix is the most widely-used digital manufacturing solution, Enabling organizations to design, simulate and execute production processes.
Participation

783 participants at INCOM’06 from 45 countries
544 academics
239 industrial representatives
130 Post Graduate and PhD students

Distribution of INCOM Academic Participants

- France: 49%
- EU (excluding France): 26%
- South and North America: 9%
- Europe (excluding EU): 7%
- Asia: 3%
- Africa: 5%
- Middle-East: 5%
Publications and Awards

Seventeen international journals are associated with the symposium for post-conference publication of special issues or regular papers (expanded versions of the best papers presented at INCOM’2006)

- Automatica
- Control Engineering Practice
- Annual Review in Control
- Journal of Process Control
- Engineering Applications of Artificial Intelligence
- Real-Time Systems
- Mechatronics
- European Journal of Operational Research
- Computers & Operations Research
- Computers in Industry
- International Journal of Production Economics
- International Journal of Computer Integrated Manufacturing
- Journal of Intelligent Manufacturing
- International Journal of Systems Science
- IEEE Transactions on Industrial Informatics
- Journal of Mathematical Modelling and Algorithms
- Revue Française de Gestion Industrielle
Preprints
- 2665 pages
- 3 volumes published as preprints
  - Vol. 1. Information Systems, Control and Interoperability, 905 pages
  - Vol. 2. Industrial Engineering, 836 pages
  - Vol. 3. Operational Research, 766 pages
- 1 extra volume for industrial and discussion papers, 158 pages

Proceedings
To be published by Elsevier Science
From 603 papers submitted, only the articles selected after the peer review process and correctly presented at INCOM’06 are included,
  i.e. 361 papers (59 % final selection rate)
- 7 invited keynote articles complete the Proceedings

Awards
- 3 prizes for the young authors
- 3 prizes for the best industrial papers
- 23 track prizes
See www.emse.fr/incom06/publication.html
INCOM’2006 in the Press

French Television
- Evening news on France 3 the 17th of May, there was a report on INCOM’2006 (three times the story was repeated that night)
- Local Saint Etienne TV channel 7 presented also INCOM’2006

French Radio
- « France Bleu » aired a report on INCOM’2006 over national radio

AFP – Agence France Presse
- AFP diffused an important communiqué on the symposium (INCOM: 800 industriels et chercheurs tentent de bâtir “l’usine intelligente”) 

News papers
- The most widely read regional news paper “La Tribune/Le Progrès” daily published accounts of INCOM and its events (May 17, 18, 19, 22, 23), with a first page story on day one.
- Several other news papers published articles on the INCOM’06 symposium: ARTESI, 01 DSI, Le Journal des Entreprises, Événements Hebdo, NewsEco, 01 Informatique, Usine Nouvelle, Cosmos & Air, etc.
# Financial results (estimated) of INCOM’2006

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<tr>
<th>Expenses</th>
<th>Receipts</th>
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<tbody>
<tr>
<td>Promotion (flyers, Web site, posters, etc.)</td>
<td>Registration fees</td>
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<tr>
<td>Publication (Preprints, programs, etc)</td>
<td>Industrial funding and stands</td>
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<tr>
<td>Congress Center Rental (Gala, Concert, etc.)</td>
<td>Scientific grants and organizing partners aid</td>
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<tr>
<td>Logistics (Shuttles, cars, parking, etc.)</td>
<td>Governmental aid</td>
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<td>Commission for National Committee of IFAC</td>
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<tr>
<td>Total*:</td>
<td>Total:</td>
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<td><strong>$ 342, 000</strong></td>
<td><strong>$ 342, 000</strong></td>
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* excluding staff and faculty expenses
Conclusion

The Rolls Royce of conferences (Andrew Kusiak)

“I think that INCOM has acquired a much higher standing after St Etienne! I sincerely cannot recall a better organised conference!”
Yiannis Papadopoulos

“Greetings! Thanks for a most excellent conference!”
Lawrence Whitman

“Well done for a great conference. We really enjoyed it.”
Glen Bright

“You have organized a very good conference. Congratulations.”
Salah E. Elmaghraby

“Why not host the next edition of INCOM… in St Etienne.”
Shimon Y. Nof