

Report to

IFIP Council Meeting,
February 27- March 1, 2005, Pohang, Korea .

IFIP TC-7: System Modelling and Optimization
Reporting period: February 2004-February 2005 .

Pat I- Council

Meetings held and scheduled- General TC7 Conferences

1. *The 22-nd IFIP TC7 Conference on System Modeling and Optimization* is organized by Prof. Luciano Pandolfi from Politecnico di Torino, Torino, Italy. The Conference is scheduled for July 17-22, 2005. In addition to Pandolfi, Prof. Andrea Bacciotti and Prof. Fabio Fagnani make a part of the local organizing committee. The International Program Committee consists of 25 members with 19 members representing IFIP. The conference will take place on the premises of Politecnico di Torino. The list of partial sponsors includes: (i) CNR (Centro Nazionale di Ricerca), (ii) Regione Piemonte, (iii) Ministero della Ricerca Scientifica e Tecnologica, (iv) several banks which are located in Torino. The preliminary Program for the conference will be send out in a few weeks. The conference will have 17 invited sessions and about 250 participants. Plenary Speakers are internationally reknown scientists in their respective areas.

The URL for the 22-nd TC7 conference is: <http://www.polito.it/ifip2005>

2. The TC7 Meeting took place on December 2, 2004, Houston, TX during the WG 7.2 IFIP Conference held at the University of Houston.

Publications

1. Proceedings of 21- TC7 Conference on Modeling and Optimization held in Sophia Antipolis, July 2003 have been just published.

SYSTEM MODELING AND OPTIMIZATION: Series : IFIP International Federation for Information Processing , Vol. 166 Cagnol, John; Zolesio, Jean Paul (Eds.) 2005, Approx. 320 p., Hardcover ISBN: 1-4020-7760-2

The Volume contains all plenary talks and , in addition, a number of highly selected and representative papers presented at the invited sessions of the conference.

2. Proceedings covering events sponsored by TC7 Working Groups are listed under the respective items describing activities of these groups.

Changes in Membership and Officers

1. National Representatives to TC7

- **United Kingdom.** Prof. Stefan Scholtes, from Cambridge University, has been co-opted by TC7 as an interim UK representative to TC7.
- **Czech Republic.** Prof Jiri Outrata has been coopted by TC7 as Czech Republic Representative to TC7. Outrata replaces Prof. Jaroslav Dolezal who ended his activities in 2001 both as GA Representative of Czech Republic and also Czech Representative to TC7.
- **Norway** Ms G. Gregersen, in her capacity as GA's National representative of Norway, has been contacted with a request to replace Mr. Wallace (past Norway's Representative to TC7) with a new National Representative. Mr Wallace retired from his position in 2001. Ms G.Gregersen has promised to address this issue.

2. Changes of membership in WG's

- **WG 7.1** . Chaired by Prof. A. Baghi . WG 7.1 has one new member: Prof. Tom Dhaerne, Department of Computational Modeling and Programming. University of Antwerpen, Antwerpen, Belgium.
- **WG 7.2** . Prof. Jean-Paul Zolésio, from INRIA Sophia Antipolis, France, became as of January 2002 a new Chair of the Group. J. P. Zolesio replaces Irena Lasiecka a former Chair of the Group. Changes in membership: The outgoing members: J. P. Puel. The incoming members are:
 - (a) Dr Marwan Moubachir, INRIA, 2004 route des Lucioles BP 93 06902 Sophia Antipolis
 - (b) Dr. Stefan Ulbrich, Technical University, Munchen, Germany. email: sulbrich@ma.tum.de
 - (c) Prof. Dr. Michael Ulbrich, University of Hamburg, Germany , email: ulbrich@math.uni-hamburg.de
 - (d) Prof. Dr. Michael Hinze, Technical University of Dresden, Germany. email: hinze@math.tu-dresden
 - (e) Prof. Walter Ring, Austria Institute of Mathematics University of Graz Heinrichstrasse 36 8010 Graz
 - (f) Prof. Pierre Dubouis, France Telecom, France Centre de Recherche France-Telecom Fort de la Tete de Chien 06-100 La Turbie France

- **WG 7.5** . The outgoing Chair Prof. Furuta has been replaced by Prof. Dan Frangopol. Dan Frangopol holds a position of Professor of Civil Engineering in the Department of Civil Engineering and Architecture, University of Colorado at Boulder.
 - **WG 7.6**. This Group is Chaired by Prof. Hans Sebastian. The following changes in membership of the group are reported: J. Dolezal and G.Kock resigned from their respective membership. New members are:
 - (a) Prof. A. Bordetzky, Department of Information Sciences, Naval Postgraduate School, 589 Dyer Rd, R 225 , Monterey, CA 93943 email: abordets@nps.navy.mil
 - (b) Prof A. Wierzbicki, National Institute of Telecommunication, ul Szachowa 1, 04-894 Warsaw, Poland email: a.wierzbicki@itf.waw.pl
 - (c) Prof. Dr. M.Grauer, Siegen university, Hordelinstr 3, 57068 Siegen, Germany email: grauer@fb5.uni-siegen.de
 - (d) Prof. Dr. Herbert Kopfer, Bremen University, Bibliothekstr 1, 28359 Bremen, Germany email: kopfer@logistik.uni-bremen.de
3. **New Honorary Members of TC7**. Prof. Michael Powell, who resigned in 2002 from his position of UK Representative and Prof. Dr. Peter Kall who has announced stepping down in January 2004 from his position of Swiss Representative , have been nominated - by unanimous acclamation - the Honorary Members and Permanent Guests of TC7. This distinction is a form of recognition offered by TC7 for a truly exceptional service and contribution these two National Representatives have provided over the years to TC7. TC7 has by now three Honorary Members: Prof. Joseph Stoer, Prof. Michael Powell and Prof. Peter Kall.

Working Group Activities

1. **WG 7.1-Modeling and Simulation**. This group is chaired by Professor Arun Bagchi from Temple University, Philadelphia, PA, USA.

Past and Future Events .

- The group is still in the process of reorganization with the aim to increase and broaden the spectrum of activities linking stochastic simulation (the primary aim of the group) with a more trendy now financial engineering, including aspects of risk modeling in engineering. The Minisymposium in Sophia Antipolis was a big step in this direction.
- Several Sessions covering activities of 7.1 are planned for the 22 TC7 Conference to be held in Torino, July 17-21, 2005. Arun Baghi is the organizing chairman.

- WG7.1 Meeting is planned for July 20, 2005 during the 22-nd TC7 Conference, Torino, Italy.

Publications It is planned that the proceedings covering selected papers presented at the Minisymposium in Sophia Antipolis will be published with Kluwer AP in 2004..

2. **WG 7.2 -Computational Techniques in Distributed Parameter Systems.** The Group is chaired by Prof. Jean Paul Zolesio from INRIA, Sophia Antipolis, France with Prof F. Troltsch from Technical University of Berlin acting as V-Chair. Dr John Cagnol, from the Pole Universitaire L. Da Vinci , Paris, is the Secretary of WG 7.2.

New Members WG 7.2 has 6 new members added to the list of members. The names of new members are listed in Section 2.

Past Events • Workshop on "Boundary Control and Variations", held in Scuola Normale Superiore, Pisa, February 24-28, 2004. The organizer was J. Paul Zolesio and the event is co-sponsored by SNS, Pisa, Italy and INRIA, Sophia Antipolis, France. URL: <http://www.crm.sns.it/boundary.html>

- Working Conference "Moving boundary, Identification and Control" held within ECCOMAS 2004, University Jyväskylä, Finland, July 24-28, 2004. Jean P. Zolesio and J. Cagnol were the main organizers. URL: <http://ifip.monsite.wanadoo.fr>

- Workshop on Shape Optimization and Control (co-sponsored by Promuval) in Lisbon (Portugal), May 31- June 4, 2004. The event was co-sponsored by SEMNI (Spain) and ARMTAc (Portugal) and INRIA(France). The main organizers: J. Paul Zolesio and M. Delfour.

URL: <http://www.ext.Inec.pt/APMTAC/cmce2004>

- Workshop "Free and Moving Boundaries, Simulation and Control", University of Houston, Texas, USA, 2-4 December, 2004. The event is co-sponsored by the Department of Mathematics, Houston University and INRIA (France). The main organizers are: J. Paul Zolesio and Roland Glowinski.

URL: <http://ifip.monsite.wanadoo.fr>

Future events

- Workshop to be organized at University of Nancy, 2005. Co-organizers: J. P; Zolesio , Jan Sokolowski and Walter Ring.
- Six special sessions on "Shape Analysis" are being organized for the 22-nd Conference in Torino, 17-22 July 2005. Co-organizers: M. Delfour, J. Sokolowski, J.P. Zolesio, D. Tiba, J. Cagnol.
- Seven special sessions on "Control and Stabilization of Systems Governed by PDE's" organized by G. Avalos and F. Bucci within 22-nd TC7 Conference in Torino, July 17-22, 2005.

- Conference on "Shape Optimization" co-organized with INRIA in Sophia Antipolis. Spring 2007. Cor-organizers F. Dubois, J. Cagnol and J.P. Zolesio.

Publications • Proceedings entitled "Control and Boundary Analysis" covering several invited sessions organized by WG 7.2 during the 21-th TC7 Conference in Sophia Antipolis, July 21-25, 2003. Editors: J. Cagnol and J.P. Zolesio. In press with Marcel Dekker. <http://www.cagnol.net/dekker-rc1.pdf>

- System Modeling and Optimization, J. Cagnol, J.P. Zolesio eds, Kluwer, 2005
- Information Processing: Recent Mathematical Advances in Optimization and Control; J. Cagnol, J.P. Zolesio eds., Presse Ecole des Mines de Paris. 2005

3. **WG 7.3 - Computer System Modeling** There has been a recent change of leadership in this WG. The new leader is Professor D. Towsley from the Univ of Massachusetts, replacing the previous Chair Prof Erol Gelnebe. Activities of the Working Group continue to focus on fostering research and training in performance evaluation. The WG had an election of officers and the previous set was reelected for a second term.

Past and Future Events • WG 7.3 cosponsored a conference with ACM SGMETRICS and the Computer Performance Foundation, June 12 - 16, New York, NY. Proceedings volume was printed by ACM.

- Fifth International Workshop on Software and Performance WOSP 2005, cosponsored with WG 6.3 and ACM SIGMETRICS and SIGSOFT, July 11-15, 2005 Palma Illes Balears, SPAIN
- WG 7.3 will cosponsor a conference with INRIA (France) and the Computer Performance Foundation in Juan La Pins, Oct. 3-7, 2005. This will include a WG7.3 workshop.
- WG 7.3 will cosponsor conference with ACM SIGMETRICS and Computer Performance Foundation, in time frame May-June 2006.

Publications Proceedings of IFIP WG 7.3 organized the *Performance 2002* conference held in Rome, Italy September 23-27, 2002 will be published by Elsevier.

4. **WG 7.4- Discrete Optimization** Professor Peter Hammer from Rutgers University (Rutgers University Center for Operations Research) became a new Chair of this Group, which has been reorganized. The orientation of the Working Group is focused towards discrete mathematics and optimization. The new membership of the group reflects this change and new focus of activities.

Past and Future Events The Second Workshop on DM& DM (Discrete Mathematics and Data Mining) took place on May 3, 2004, in San Francisco. It was co-sponsored by IFIP and SIAM - the Society for Industrial and Applied Mathematics, and it was organized within the framework of the Third SIAM International Conference on Data Mining.

Publications • A refereed collection of papers presented at the workshop will be published as a special issue of the journal *Discrete Applied Mathematics* (Elsevier). The issue should be in print by the end of this year.

- Intensive editorial work continues on the special issue of *Discrete Applied Mathematics* dedicated to the first DM& DM workshop, which took place in 2002. The publication of the special issue is expected soon.

5. **WG 7.5 - Reliability and Optimization of Structural Systems**

Prof. Dan Frangopol from University of Colorado is the Chair of the Group and Prof. J.D. Sorensen is the V-Chair.

Changes in the Office: D. Frangopol from University of Colorado, Boulder, US has assumed the position of WG. 7.5 Chair (replacing Prof Furuta). Professor J.D. Sorensen, from Denmark replaces prof Maes, CDN as the V-Chair. The change in the Office took place in March 2004.

Updated list of all members A.H Ang, USA, G. August, Italy, A. Bori, Italy, J. Casa Spain, H. N. Cho, Korea, M. Ciampoli, Italy, C. A. Cornell, USA, R. B. Corotis, USA, A. Der Kinreghiam, USA, O. Ditlevsen, Denmark, M. Dogaki, Japan, H. Ellis, USA, L. Esteva, Mexico, M.H. Faber, Switzerland, D. M. Frangopol, USA (Chair), G. Fu, USA, H. Furuta, Japan, P. Geyskens, USA, M. Gioffre, Italy, C. Cuedes-Soares, Portugal, M. Grigoriu, USA, H. Ishikawa, Japan, R. Iwankiewicz, South Africa, S. Jendo, Poland, M. Kavatani, Japan, M. Lemaire, France, M. A. Maes, Canada, K. Marti, Germany, R. Melchers, Australia, Y. Murotsu, Japan, J. van Noortwik, Netherlands, A. S. Nowak, USA, M. D. Pandey, Canada, R. Rackwitz, Germany, J. O. Royset, USA, M. Sakano, Japan, N. Shetty, UK, P. Sniady, Poland, J. D. Sorensen, Denmark, M.M. Szerszen, USA, W. Tang, Hong Kong, P. Thoft-Christensen, Denmark, P. Waarts, The Netherlands, Y. K. Wen, USA, Z. Zembaty, Poland,

Past and Future activities • The 12-th IFIP WG 7.5 Working Conference on "Reliability and Optimization of Structural Systems" is planned to be held in Aalborg, May 22-25 2005. The conference is co-sponsored by Aalborg University. The main themes

represented at the conference are the following: reliability of structural systems, time-variant systems reliability, strength and load modeling for structural systems, structural safety objectives and optimization. applications of structural systems reliability theory, reliability of special structures, failure modes, reliability and optimization.

- At the 22-nd TC7 Conference, Torino, Italy, 17-22 July 2005 Professor Dan Frangopol will present a keynote lecture. The Group is organizing special sessions featuring activities of 7.5.

Publications WG 7.5 has just published the post conference proceedings of IFIP WG7.5 Working Conference on Structural Reliability and Optimization held in March, 2002 in Japan. The publisher is Balkema Publishing Co., The Netherlands.

6. **WG 7.6 Optimization - Based Computer Aided Modeling and Design.** The group is chaired by Professor Hans Sebastian from Leipzig University, Germany.

Changes in membership J. Dolezal and G.Kock resigned from membership. New members are A. Bordetzky (USA), A. Wierzbicki (Poland), M.Grauer (Germany), H. Kopfer (Germany).

Past and Future Events. • IFIP WG 7.6. Workshop on "VEAM-Virtual Environments for Advanced Modeling" took place in Honolulu , January 2-4 , 2004 at the University of Hawaii at Manoa. The main organizer was Tung Bui (University of Hawaii). The workshop represented an exceptionally high quality with 25 internationally recognized lecturers.

Details are given: <http://ec.cba.hawaii.edu/veam/index.html>

- WG meeting took place during the workshop listed above
- The next Workshop of WG 7.6. is scheduled for Hamburg , Germany in late November or December 2005.
- WG 7.6 meeting took place during the HICSS Conference on the Big Island of Hawaii.

Publications The feature issue of EJOR "Advances in Modeling " (papers from the Working Conference in Japan , March 2002) is in press with Kluwer . Guest editors are M. Makowski, Y. Nakamori and H.-J. Sebastian .

Proceedings Volume from the Honolulu Workshop and the CSM Workshop in Vienna is still under preparation .

7. **WG 7.7 - Stochastic Optimization.** The Group is chaired by Professor Kurt Marti from Federal Armed Forces University, Munich, Germany.

Past and Future Events • IFIP-Workshop on "Stochastic Integer Programming (SIP)", University of Groningen, NL, May 24 - 26, 2004.

The local organizing committee was chaired by Dr. M.H. van der Vlerk, member of WG7.7. This first IFIP-Workshop on Stochastic Integer Programming and its applications was a great success. The Workshop was attended by 18 experts.

- IFIP/IIASA/GAMM-WORKSHOP on "Coping with Uncertainty (CwU) in the Applied Sciences", December 13 - 16, 2004, International Institute for Applied Sciences (IIASA), Laxenburg/Vienna, Austria.

ORGANIZERS: K. Marti, Federal Armed Forces University Munich, Y. Ermoliev, IIASA Laxenburg, and G. Pflug, University of Vienna

TOPICS: Modelling of Uncertainty: Stochastic Models, Fuzzy Models, etc.; Optimal decision under uncertainty, Stochastic Optimization Methods, Robust Optimal Decisions; Applications to Environmental and Social Sciences, Economics, Policy-Making, Management, and Engineering. More information (program, abstracts, addresses of the participants, etc.) is available at the Web-site:

<http://www.iiasa.ac.at/marek/wrksp/cwu04>

SPONSOR: The Workshop was supported by IFIP, IIASA, GAMM, the German ministry BMBF, the University of Vienna and the Austrian Science Foundation (OeFG).

PARTICIPANTS: 44 researchers from 19 countries took part in this conference.

Publications

- Proceedings: A Proceedings volume is prepared for Springer's Lecture Notes Series in "Economics and Mathematical Systems (LNEMS)".
- Book on Stochastic Optimization In 2004/2005 the following monograph was published by one of the WG7.7 members: "Stochastic Optimization Methods" by Kurt Marti Springer-Verlag, Heidelberg-Berlin-New York, 2005 ISBN: 3-540-22272-3

Part II: Technical Assembly

National Representatives. Several of National Representatives in TC7 are either inactive or should be replaced/nominated. It will be very helpful if more effective and timely system of nomination for National Representatives is adopted. A positive step in this direction was taken by Argentina Representative to the

GA , Cecilia Berdichevsky. Her cooperation has led to a significant increase of Argentina's participation in the TC7 activities. It will be very desirable if this example is followed by other GA National Representatives whose countries are not presently represented in TC7.

Report signed by :

Prof. Irena Lasiecka - TC7 Chair

February , 2005

Attendance to TC-7 Meetings

| Country | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 01 | 03 |
|-----------------|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Argentina | | | | | | | o | x | o | | | o | o |
| Austria | x | o | x | | x | x | x | x | | o | o | o | x |
| Belgium | | | | | | | | | | | | x | x |
| Bulgaria | x | o | | | o | | | o | | | | | |
| China, PR | | | | | | | | | x | | | | |
| CLEI (Brazil) | - | - | o | o | o | o | | | | | | | o |
| Czech Republ. | x | x | x | x | x | x | x | x | o | x | | | |
| Denmark | x | x | x | x | x | x | x | | | o | | | o |
| Finland | x | | x | | x | o | y | o | o | | z | z | |
| France | x | x | x | x | x | x | x | | x | | x | x | x |
| Germany (2) | x | o | x | o | x | x | x | x | z | o | x | x | |
| Greece | | | | | | | | | | | | | o |
| Hungary | x | | o | | | o | | o | | x | o | x | x |
| India | | | | | | | | o | o | | | | |
| Ireland | | | | o | | o | | | | | | | |
| Italy | x | o | x | | o | x | y | o | | | o | | o |
| Japan | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Norway | | | | | | | | o | x | | o | | |
| Poland | x | o | x | o | x | x | x | o | x | x | x | x | x |
| Portugal | | | | | | | | | | | | | |
| Russia | | | | | | | | | | | | | o |
| Singapore | | | | | | | | | | o | | | |
| Slovakia | - | - | - | - | - | o | y | | | o | | | o |
| Slovenia | - | - | - | - | - | - | - | - | - | - | - | o | o |
| Spain | | | | | | o | | | | | | | |
| Switzerland | x | x | x | x | x | x | x | x | x | x | x | x | z |
| The Netherlands | | | | | | | o | | y | o | | o | |
| United Kingdom | x | o | o | | x | x | o | o | x | o | x | x | o |
| U.S.A. (2)/1 | y | y | y | | y | y | x | o | x | x | x | x | x |
| WG 7.1 | | | | | | | | | x | | x | | x |
| WG 7.2 | | | | | | | | z | x | x | x | x | x |
| WG 7.3 | | | | | | | | | | | | | o |
| WG 7.4 | | | | | | | | x | x | o | x | o | x |
| WG 7.5 | | | | | | | | | x | o | o | o | z |
| WG 7.6 | | | | | | | | z | x | o | | o | x |
| WG 7.7 | | | | | | | | x | x | x | x | x | z |

x = attended by TC-7 member

y = attended by WG chairman/representative of this country

z = attended by proxy

o = excused

- = not yet member

February 2005.