EUROPT

Newsletter 18 of EUROPT

EUROPT - The Continuous Optimization Working Group of EURO

http://www.iam.metu.edu.tr/EUROPT/

January 2010

In this issue:

Words from the chair

Dear Members of EUROPT, dear Friends,

It is once again my great pleasure to insert some salutation words in this new issue of our Newsletter. In these special days, I would like to express to all of you my best wishes for a Happy New Year 2010, and my deep thanks to the Members of the Managing Board (MB) for their permanent support and expert advice. This is also time for remembering the many important scientific events to take place during this year. They are of great interest, and I am sure of meeting most of you in some of them. I would like to express my gratitude to those members of EUROPT who are involved in the organization of these activities and, according the experience of the last years, all of them will be successfully organized.

I would like to start by calling your attention on our 8th EUROPT Workshop "Advances in Continuous Optimization" (www.europt2010.com), to be held in University of Aveiro, Portugal, in July 9-10, the days previous to EURO XXIV 2010, in Lisbon (http://euro2010lisbon.org/). We kindly invite you to participate in this meeting, which is the annual meeting of our EUROPT group and that, in this occasion, has many additional points of interest. To start with, we shall celebrate the Ten Anniversary of EUROPT, and this remarkable fact requires a wonderful venue, as the City of Aveiro is, and an excellent organization, the one that we can expect from the Organizing and Local Committees, under the efficient supervision of our close friends, Tatiana and Domingos. From the scientific side, the list of Invited Speakers also corresponds to a birthday celebration, and contributes to maintain the high quality trend established in previous editions. They will be Immanuel Bomze (University of Vienna), Mirjam Duer (University of Groningen), Alexander Shapiro (Georgia Tech), Tamas Terlaky (Lehigh University), Luis Nunes Vicente (University of Coimbra), and Henry Wolkowicz (University of Waterloo).

Other workshops that we must attend, very closely related to our group, are the following:

1. 24th Mini EURO Conference on Continuous Optimization and Information-Based Technologies in the Financial Sector, Izmir, Turkey, June 23-26, 2010

   (http://www.ieu.edu.tr/EUROPT-2010).

2. The International Conference on Continuous Optimization, Santiago, Chile, July 26-29, 2010 (http://www.iccopt2010.cmm.uchile.cl/).

3. EngOpt2010, 2nd International Conference on Engineering Optimization, Lisbon, Portugal, September 6-9, 2010 (http://www.engopt2010.org/)

4. 10th International Conference on Parametric Optimization and Related Topics (paraoptX), Karlsruhe, Germany, September 20 - 24, 2010 (http://www.ior.kit.edu/paraoptX.php)

Detailed information on these (and other) events, as well as on EURO XXIV, is provided below in this Newsletter, and in our EUROPT website. Let me give you an announcement for 2011. This year there will be no EURO Conference, because 2011 is the year of IFORS XIX. The conference will be held at the new Melbourne Convention Centre in the city of Melbourne, Australia, from the 10th to the 15th July 2011. The MB of EUROPT is very happy to accept the proposal of the Centre for Informatics and Applied Optimization (CIAO) for organizing the 9th EUROPT Workshop "Advances in Continuous Optimization", before the

IFORS in Melbourne. CIAO (http://guerin.ballarat.edu.au/ard/itms/CIAO/ciao.shtml) is a very prestigious research centre, established in 2001 and located within the Graduate School of Information Technology Mathematical Sciences at the University of Ballarat. CIAO has an internationally reputed team of researchers in Optimization, interested in both, theory and applications of Optimization. Two of our distinguished EUROPT Fellows are strongly linked to CIAO: our dear Prof. Alex Rubinov is considered the founder of this prestigious centre, and our last Fellow, Adil Bagirov, is also a highly-ranked member of CIAO, and he is the leader of many important research projects there. Since this very early moment, you are kindly invited to consider this unique opportunity to visit Australia, and to participate in both events.

With my best wishes, Yours sincerely,
Marco A. Lopez, Chair of EUROPT

Forthcoming Events

- **ISCO2010**

International Symposium on Combinatorial Optimization
Hammamet, Tunisia
March 24-26, 2010

http://www.lamsade.dauphine.fr/ isco/

Special Session on "Using metaheuristics for solving combinatorial optimization problems".

Session Chairs: Professor Jacques Teghem, Faculty of Polytechnic of Mons, Belgium and Professor Taicir Loukil, Faculty of Economics Sciences and Management, Sfax, Tunisia

Session description. Over the recent years, a growing literature on solving combinatorial optimisation problems by metaheuristics has emerged. This results in development of new models and approaches. This special session aims at presenting recent advances in solving combinatorial optimisation problems with metaheuristics. It may be new approaches for classical problems or new relevant problems in particular when additional constraints are included. Papers presenting original cases studies are also welcomed. Contributions covering novel uses of metaheuristics, extensions of existing metaheuristics to tackle real wold problems, surveys are also welcomed

Submission. Authors are requested to provide a full paper of 8 pages maximum in accordance with the template format of the conference. The authors must submit their papers through website, http://www.lamsade.dauphine.fr/ isco/.

IMPORTANT DAYS
Abstract submission: December 27, 209
Notification of acceptance: January 23, 2010
Early registration deadline: February 21, 2010

• MOPGP'10
9-th International Conference on Multiple Objective Programming and Goal Programming
Sousse, Tunisia
May 24-26, 2010

http://mopgp10.logiq-isgis.org/

Scope: MOPGP is an international conference series devoted to multi-objective programming and goal programming. It disseminates recent theoretical and methodological developments, algorithmic developments, survey results and significant technical applications in the field of MOP and GP.

Target topics (but not limited to):

- Planning and scheduling
- Logistic and routing problems
- Time tabling
- Cutting problem
- Knapsack problem
- Portfolio optimization
- Set covering / clustering / packing
- Datamining
- Health and environment
- Bioinformatics
- Business applications (Finance, management, marketing).

IMPORTANT DAYS

Abstract submission: January 31st, 2010
Notification of acceptance: March 1st, 2010
Early Registration: April 10th, 2010

• 11th Workshop on Optimal Control, Dynamic Games and Nonlinear Dynamics
Amsterdam, Netherlands
31 May - 2 June 2010

http://www.feb.uva.nl/11thworkshop

SECOND CALL FOR PAPERS

Aims: The aim of the workshop is to bring together researchers interested in applying nonlinear methods to problems in economics, operations research and management science. Topics of interest are optimal control theory and dynamic programming, dynamic

games, heterogeneous agent models and learning, environmental economics, economic modeling, complex systems and related fields.

Plenary speakers:

- James Bullard (Federal Reserve Bank of St. Louis)
- Thomas Lux (Christian-Albrechts-Universitaet zu Kiel)
- Geert-Jan Olsder (Delft University of Technology)
- William Sandholm (University of Wisconsin)
- Anastasios Xepapadeas (Athens University of Economics and Business)

Guest of Honor: George Leitmann, who will turn 85 on May 24, 2010, will be Guest of Honor of the Workshop.

Submission procedure: Abstracts of presentations should be submitted through Conference Maker by January 31, 2010. Acceptance notifications will be sent out by February 28, 2010. Registration is mandatory in order to be included in the final program.

Conference maker: https://editorialexpress.com/conference/OCDGND11

Registration: The registration fee will be 120 Euros. Registration will start on February 1, 2010. A registration form will be provided on the website of the workshop. Participants should register before April 15, 2010.

Program Committee: William Brock, Dee Dechert, Herbert Dawid, Christophe Deissenberg, Cees Diks Engelbert Dockner, Gustav Feichtinger (*honorary chair*), Richard Hartl, Josef Haunschmied, Cars Hommes, Alan Kirman, Peter Kort, Gernot Tragler, Jan Tuinstra, Vladimir Veliov, Florian Wagener (*chair*), Frank Westerhoff, Georges Zaccour, Aart de Zeeuw

Organizers: Cees Diks, Pim Heijnen, Jan Tuinstra, Florian Wagener **Further information:** 11thworkshop-feb@uva.nl

IMPORTANT DAYS

Deadline for submission: January 31, 2010
Notification of acceptance: February 28, 2010
Deadline for registration: April 15, 2010

• ALIO/INFORMS Joint International Meeting
June 6-9, 2010
Buenos Aires, Argentina

http://meetings.informs.org/BuenosAires2010/ meetings@informs.org

ANNOUNCEMENTS of CONNECTED EVENTS

- **Call for Session Chairs**

  The INFORMS Simulation Society is sponsoring a simulation track at next year's ALIO-INFORMS Joint International Meeting in Buenos Aires, Argentina, June 6-9,

2010. The sessions typically have four presentations in a session length of 90 minutes. Each invited author will need to upload a title and abstract for their presentation by February 1, 2010 (only an abstract is needed for submission, not a full paper). Note that, as a session organizer, you can present a paper of your own; if you are unable to attend the conference, you can have one of the presenters actually run the session. If you are interested in organizing a sponsored session, or know of someone who might be interested, please contact the cluster chair, Peter J. Haas (peterh@almaden.ibm.com).

Contact: Peter J. Haas, Research Staff Member IBM Almaden Research Center K55/B1 650 Harry Road, San Jose, CA 95120-6099

Phone: 408-927-1702

FAX: 408-927-3215

Web page: http://www.almaden.ibm.com/cs/people/peterh

– **Call for cluster organizers**

We are organizing a Cluster on Logistics, Vehicle Routing and Location in the ALIO-INFORMS 2010 .

We would be very pleased if you could propose and chair a three (or four) papers session, or submit an abstract (with no more than 500 characters) to be included in a session of the cluster. In either case, please let us know your intention on the subject as your earlier convenience.

If you are willing to accept this invitation, we will send you further details on how to implement the session or to send the abstract. Please note that the final deadline for implementing the required procedure is the first of February 2010.

Contacts

Isabel Méndez-Díaz (imendez@dc.uba.ar)

Paula Zabala (pzabala@dc.uba.ar)

– **OR in Bioinformatics: Call for Papers and Invited Sessions Proposals**

Six years ago we were celebrating the 50th anniversary of discovering the double helical structure of the DNA, and the completion of the Human Genome Project. Both events brought a revolution in the understanding of many important biological processes at the molecular level and opened new challenges and avenues for a new kind of research. In this context we have to face the challenge of utilizing the huge amount of genome, proteome and reactome data to develop new methods and tools that can help us manage, analyze and understand the relevant information that is hidden within them. Many of the emerging these BIOINFORMATICS challenges can be modeled as problems in graphs, linear and nonlinear programs, stochastic processes, combinatorics, simulation, network optimization, among others. For these problems the operations research community has accumulated a huge number of methods and techniques that can be applied to deal with them. These procedures include, among many others, exact and approximation algorithms along with heuristics and meta-heuristics.

We are witnessing a paradigm shift in BIOINFORMATICS from a multidisciplinary to a transdisciplinary research, which gives to the OR methods a new perspective of

relevance. The aim of this meeting is two fold. First, to present the latest advances of OR algorithms for Bioinformatics and to provide a forum for the discussion of new models for biological problems that may find their solution in operation research based methods. Second, to present to the BIOINFORMATCIS community recent OR developments that can be exploited to solve well known and new bioinformatics problems.

We are inviting researchers to chair especial sessions dealing with the application of OR methods or techniques or with the modeling of biological problems in the following fields: Microarrays; Molecular dynamics and simulation; Molecular interactions; Molecular sequence classification, alignment and assembly; Systems Biology; Gene regulation; Gene pattern discovery and identification; Gene expression analysis; Genetic network modeling and inference; Comparative genomics; RNA and DNA structure and sequencing; Biological data mining and knowledge discovery; Biological databases and information retrieval; Sequence analysis and alignment; Protein folding and fold recognition; Metabolic modeling and pathways; Macromolecular structure prediction; Structural and functional genomics; Amino acid sequencing; Stochastic modeling.

The sessions will consist of three to four papers, an abstract of no more than 500 characters is required.

Deadline for implementing the required procedure is February 1, 2010.

Contact Carlos Brizuela (cbrizuel@cicese.mx)

– **Extended deadline of 7th ESICUP Meeting within ALIO-INFORMS Joint International Meeting co-hosted by ESICUP - The EURO Special Interest Group on Cutting, EURO, ALIO and INFORMS**

http://www.fe.up.pt/esicup/extern/esicup-7thMeeting

Aims. The 7th ESICUP Meeting is the 2010 regular meeting of ESICUP (EURO Special Interest Group on Cutting and Packing) and provides a forum for those working in the Cutting Packing field, bringing together researchers from all over the world.

The 7th ESICUP Meeting is the 2010 regular meeting of ESICUP and follows meetings in Wittenberg (Germany), Southampton (United Kingdom), Porto (Portugal), Tokyo (Japan), L'Aquila (Italy) and Valencia (Spain). This year edition is a meeting-within-a-meeting at ALIO-INFORMS Joint International Meeting. ESICUP gathers practitioners, researchers and Operations Research educators with interests in the area of Cutting and Packing. The purpose of ESICUP is to improve communication among individuals working in this field. Besides the promotion of publications, the activities of the group include the maintenance of a web page and the organization of meetings. Founded in 1988, during the EURO/TIMS Conference in Paris, by Prof. Gerhard Waescher and Prof. Harald Dyckhoff, it has now around 600 members, registered on the web site, from the entire world. ESICUP is since 2003 a Working

Group of the Association of European Operational Research Societies (EURO).

Submission. To submit a communication to the 7th ESICUP Meeting write a short abstract (500 characters maximum, approximately 50 words) on a cutting and packing topic and submit it by email to esicup@gmail.com (further details: Conference.AbstractSubmission)

Extended submission deadline: January 7, 2010

Topics of Interest. In this meeting contributions dealing with any aspect of the Cutting and Packing problems formulation, resolution or application are welcomed. This includes theoretical achievements, algorithms development and real-world implementations. Different problems, related with Cutting and Packing, are also welcomed. Typical, but not exclusive topics of interest are:

* One-Dimensional Problems
* Two-Dimensional Rectangular Problems
* Nesting and irregular shapes packing
* Three-Dimensional Packing
* Bin-Packing
* Container Loading
* Problem generators and benchmarks
* Additional Objectives and Constraints in CP
* Typologies
* Industrial applications

Program Committee: José Fernando Oliveira, (*Chair*) University of Porto, Julia Bennell, University of Southampton, António Miguel Gomes, University of Porto, Gerhard Waescher, Otto-von-Guericke-Universitaet Magdeburg, Horacio Yanasse, National Institute for Space Research (Brazil)

• EURO XXIV
24th European Conference on Operational Research
Lisbon, Portugal
July 11th - 14th, 2010

http://www.euro2010lisbon.org

Aims and Scope: This large conference is organized by EURO (The Association of European O.R. Societies) and APDIO (The Portuguese O.R. Society), with the support of FCUL (Faculty of Sciences, Universidade de Lisboa, Portugal) and CIO (Operational Research Centre, Portugal).

All researchers, academicians, practitioners, as well as students interested in any branch of operational research, mathematical modelling or economic analysis are invited to participate in the conference and to present their papers. Invited and contributed papers will be organized in parallel sessions. In general, sessions will be a part of conference streams, and streams are grouped by areas. Researchers who want to organize an invited session

or contribute a paper within an invited session should contact the Stream organizer, Area organizer or a corresponding member of the Program Committee with their proposals.

Abstract submission and registration are done online, via the Conference web page.

Contacts:

Programme- prog@euro2010lisbon.org

Registration, travel accommodation- registration@euro2010lisbon.org

General inquiries- info@euro2010lisbon.org

IMPORTANT DAYS

Abstract submission: February 28, 2010
Notification of acceptance: March 15, 2010
Early Registration: March 31, 2010
Author registration (for inclusion in the programme): April 30, 2010

• 8th EUROPT Workshop
ADVANCES IN CONTINUOUS OPTIMIZATION
Aveiro, Portugal
July 9 - 10, 2010

http://www.europt2010.org

(FIRST CALL FOR PAPERS)

Aims and scope: This meeting continues in the line of the EUROPT workshops, the first held in 2000 in Budapest, followed by the workshops in Rotterdam in 2001, Istanbul in 2003, Rhodes in 2004, Reykjavik in 2006, Prague in 2007, and Remagen in 2009.

The workshop aims to provide a forum for researchers and practitioners in continuous optimization and related fields to discuss and exchange their latest works.

Invited Speakers: Immanuel Bomze, University of Vienna; Mirjam Duer, University of Groningen; Alexander Shapiro, Georgia Tech; Tamas Terlaky, Lehigh University; Luis Nunes Vicente, University of Coimbra; Henry Wolkowicz, University of Waterloo.

Topics: the topics include, but are not limited to, the following:

- applications of continuous optimization to combinatorial problems
- complexity and efficiency of optimization algorithms
- convex and nonsmooth optimization
- complementarity and variational problems
- derivative-free optimization
- global optimization
- linear and nonlinear optimization
- optimal control

– multiobjective optimization
– robust optimization
– semi-definite programming
– semi-infinite programming
– stochastic optimization
– large-scale optimization

Program Committee: Marco Lopez (*Chair*), Universidad de Alicante; Domingos M Cardoso, Universidade de Aveiro; Emilio Carrizosa, Universidad de Sevilla; Joaquim João Júdice, Universidade de Coimbra; Diethard Klatte, Universitat Zurich; Olga Kostyukova, Institute of Mathematics, Belarusian Academy of Sciences; Marco Locatelli, Universita di Torino; Florian Potra, University of Maryland, Baltimore County; Franz Rendl, Universitat Klagenfurt; Claudia Sagastizabal, CEPEL (Research Center for Electric Energy); Oliver Stein, Karlsruhe Institute of Technology; Georg Still, University of Twente.

Organizing Committee: Domingos M Cardoso (*Chair*), Universidade de Aveiro; Tatiana Tchemisova (*co-Chair*), Universidade de Aveiro; Miguel Anjos, University of Waterloo; Edite Fernandes, Universidade do Minho; Vicente Novo, UNED (Spain); Juan Parra, Universidad Miguel Hernández de Elche; Gerhard-Wilhelm Weber, Middle East Technical University.

Local Committee (Universidade de Aveiro): Paula Carvalho; João Pedro Cruz; Jorge Manuel Esteves; Carlos Luz (Politécnico de Setubal); Agnieszka Malinowska; Enide Andrade Martins; António Pereira; Paula Rama.

Secretariat: Agnieszka Malinowska (e-mail: europt2010@europt2010.com)

IMPORTANT DAYS
Abstract submission: May 10, 2010
Notification of acceptance: May 20, 2010
Deadline for early Registration: May 31, 2010

- ## The International Conference on Continuous Optimization (ICCOPT) 2010 Santiago, Chile July 26-29, 2010

http://www.iccopt2010.cmm.uchile.cl/

Scope. ICCOPT is a forum for researchers and practitioners interested in continuous optimization, which takes place every three years. The first version was held in 2004 at Rensselaer Polytechnic Institute (Troy, NY, USA), while the second version was organized in 2007 at McMaster University (Hamilton, Ontario, Canada).

The Conference will feature a series of invited lectures, contributed talks, streams on specific subjects, and poster sessions. Furthermore, a School on Continuous Optimization and Mathematical Modeling, addressed to PhD students and young researchers in the field of nonlinear optimization modeling and its applications will precede ICCOPT-2010.

Program committee: Florian Jarre (*President*, Dusseldorf University, Mihai Anitescu (Argonne National Laboratory), Larry Biegler (Carnegie Mellon University), Liqun Qi (The Hong Kong Polytechnic University), Masao Fukushima (Kyoto University), Alejandro Jofré (Universidad de Chile), Jean-Bernard Lasserre (CNRS-LAAS), Marcos Raydan (Universidad Central de Venezuela), Andrzej Ruszczynski (Rutgers Business School), Claudia Sagastizábal (CEPEL-Electric Energy Research Center), Fabio Schoen (Università degli Studi di Firenze), Tamas Terlaky (Lehigh University), Ya-xiang Yuan (Institute of Computational Mathematics and Scientific/Engineering Computing)

Local organizing committee: Alejandro Jofré (*Chair*, Universidad de Chile), Roberto Cominetti (co-chair, Universidad de Chile), Rafael Correa (co-chair, Universidad de Chile), Felipe Álvarez (Universidad de Chile), Jorge Amaya (Universidad de Chile), Oscar Cornejo (Universidad Católica de la Santísima Concepción), Fabián Flores-Bazán (Universidad de Concepción), Pedro Gajardo (Universidad Técnica Federico Santa María), Fernando Ordoñez (University Southern California, on leave Universidad de Chile), Héctor Ramírez (Universidad de Chile), Jorge Rivera (Universidad de Chile)

Invited speakers. Emmanuel Candes (California Institute of Technology), Xiaojun Chen (The Hong Kong Polytechnic University), Roberto Cominetti (Universidad de Chile), Ignacio Grossman (Carnegie Mellon), Rene Henrion (Weierstrass Institute for Applied Analysis and Stochastics), Marco Locatelli (Universita di Torino), Zhi-Quan (Tom) Luo (University of Minnesota), Jorge Nocedal (Northwestern University), Mikhail Solodov (Instituto de Matematica Pura e Aplicada), Philippe Toint (Facultés Universitaires Notre Dame de la Paix), Stefan Ulbrich (Technische Universität Darmstadt), Luis Nunes Vicente (University of Coimbra)

Conference site. The talks will be held in the TecnoAulas Building at the School of Economics and Business of Universidad de Chile, located in the Downtown area of Santiago within 5 minutes walk across a nice small park from the closest subway station and public transportation. Accommodations include 15 fully equipped classrooms and two lecture theaters, as well as rooms for discussions and plenty of space for reception and coffee breaks.

Winter school. The first two days (July 24-25) of the conference will consist of the School on Continuous Optimization and Mathematical Modeling. This school aims at providing an introductory but up to date perspective on continuous optimization, mathematical modeling and its application, for PhD students and young researchers in the field. We plan to provide free registration for all participants and they also will can apply for free accommodation during the School and Conference.

The courses for this School will be:

- Optimization under uncertainty (Rutgers team)
- Optimization in natural resources management (CMM team)

IMPORTANT DAYS

Streams Submission: March 12, 2010
Winter School Applications: March 19, 2010
Abstract submission: April 16, 2010
Poster abstract submission: May 28, 2010
Conference Early registration: May 14, 2010

• MOPTA 2010 – Modeling and Optimization: Theory and Applications
Lehigh University, Bethlehem, PA
August 18-20, 2010

http://coral.ie.lehigh.edu/ mopta/

Scope: The conference is an annual event aiming to bring together a diverse group of people from both discrete and continuous optimization, working on both theoretical and applied aspects. Our target is to present a diverse set of exciting new developments from different optimization areas while at the same time providing a setting which will allow increased interaction among the participants. We aim to bring together researchers from both the theoretical and applied communities who do not usually have the chance to interact in the framework of a medium-scale event.

Confirmed Plenary Speakers: Egon Balas, Carnegie Mellon University; Mung Chiang,Princeton University; Donald Goldfarb, Columbia University; Arkadi Nemirovski, Georgia Institute of Technology; Anthony T. Patera, Dept. of Mechanical Engineering, MIT; H. Edwin Romeijn, University of Michigan; Andrzej Ruszczynski, Rutgers University.

AIMMS-MOPTA modeling competition: An optimization modeling competition, sponsored by AIMMS is organized. Finalist will present their results at a special session of MOPTA 2010. Problem released January 2010.

Contributed talks: Each accepted paper will be allotted a 25 minute talk. Authors wishing to speak and/or organize a session should submit an abstract via the conference WEB page by June 16, 2010.

IMPORTANT DAYS

Abstract Submission deadline: June 16, 2010
Early registration deadline: July 15, 2010
Conference date: August 18-20, 2010

• EngOpt2010 – 2nd International Conference on Engineering Optimization
Lisbon, Portugal
September 6-9, 2010

www.engopt2010.org

Conference: EngOpt is a forum for Engineers, Mathematicians and Computer Scientists to share research and innovations, promoting interdisciplinary activities in all fields of Engineering Optimization.

Objectives: The main objective of the EngOpt conference series (www.engopt.org) is to bring together engineers, applied mathematicians and computer scientists working on

research, development and practical application of optimization methods applied to all engineering disciplines or developing essential techniques in this field.

Abstract submission Prospective authors are invited to submit abstracts on optimization and its application in all areas of engineering and industry.

Main Topics: Engineering Design Optimization, MDO - Multidisciplinary Design Optimization, Inverse problems, Engineering Simulation Involving Optimization Techniques, Basic Numerical Techniques, Interdisciplinarity in Engineering Optimization, Efficient Analysis and Reanalysis Techniques, Practical Applications.

IMPORTANT DAYS
Abstract submission: March 5, 2010
Notification of acceptance: April 2, 2010
Full paper submission: June 4, 2010

• ICNAAM 2010
8th International Conference of Numerical Analysis and Applied Mathematics 2010
Rhodes, Greece
19-25 September 2010

http://www.icnaam.org/

(SECOND CALL FOR PAPERS)

Within ICNAAM 2010 we will celebrate the 65th birthday of Prof. Dr. Peter Deuflhard.

Invited Speakers so far: Peter Deuflhard, Institute Berlin (ZIB); Hans Georg Bock, University of Heidelberg; Wolfgang Dahmen, Institut fur Geometrie und Praktische Mathematik, RWTH Aachen;Michael Dellnitz, University of Paderborn; Ernst Hairer, Université de Genève; Ronald W. Hoppe, University of Houston; Ralf Kornhuber, Freie Universitat Berlin; Ben Leimkuhler, University of Edinburgh; Alfred K. Louis, Universität des Saarlandes; Tom Manteuffel, University of Colorado; Alexander Ostermann, University of Innsbruck; Alfio Quarteroni, EPFL, Lausanne; Sebastian Reich, Universitat Potsdam; Bob Russell, Simon Fraser University; Steve Ruuth, Department of Mathematics, Simon Fraser University; Chus Sanz-Serna, Universidad de Valladolid; Christof Schutte, Mathematics Institute, Berlin; Robert D. Skeel, Purdue University; Karline Soetaert, The Netherlands Institute of Ecology; Gerhard Wanner, Université de Genève; Jinchao Xu, Pennsylvania State University; Harry Yserentant, Technische Universitat Berlin

Publications. Proceedings of ICNAAM 2010 will be published in the very famous AIP (American Institute of Physics) Conference Proceedings. More information can be found at: http://www.icnaam.org/proceeding.htm

Proceedings of ICNAAM have been abstracted/indexed in: ISI Proceedings, Zentrablatt fur Mathematik, MathSciNet, Scopus, INSPEC, Scirus, Google Scholar etc.

Selected Proceedings of ICNAAM 2010 will be published in appropriate journals.

Organizers. The session and symposium organizers have free registration and a participation in the accommodation fee.

Leaflets and posters. If you want leaflets and posters for ICNAAM 2010, please send your request to tsimos.conf@gmail.com We mention that leaflet can be downloaded from the URL address of the Conference: http://www.icnaam.org

IMPORTANT DAYS

Early Registration : April 30, 2010
Normal Registration : June 15, 2010
Late Registration : July 29, 2010
Submission of Extended Abstract: July 22, 2010
Submission of the source files of the camera ready extended abstracts: August 1, 2010
Submission of the full paper: September 30, 2010 - January 31, 2011

• ICOTA 8
8th International Conference on Optimization: Techniques and Applications
Shanghai, China
December 10-13, 2010

http://www.fdsm.fudan.edu.cn/icota8

(CALL for SPECIAL SESSIONS)

Co-Chairs of the ICOTA 8 International Programme Committee invite you to organize a special session or stream for *ICOTA 8*. Special sessions and streams are to complement the regular technical programme with emerging topics of interest. Thus, they will constitute very important parts of the programme of *ICOTA 8*.

Each special session will consist of 4 talks, 20 minutes each. You are also welcome to organize a special stream which could include more than one session.

Contacts Please send your proposal to ICOTA8@fudan.edu.cn

Deadline February 1, 2010.

Proposals The proposal should include the following information:

1. Title of the proposed special session (stream)
2. Name(s)/affiliation(s) of organizer(s), and contact email address
3. List of potential contributors and tentative paper titles (if available
4. Aim of the proposed special session (stream)

Proposals will be evaluated on the basis of their relevance, timeliness, interest and significance, as well as the quality of potential papers to be included in the proposed session (stream). Notification of acceptance of special sessions (streams) will be sent via email by

February 20, 2010. Special session (stream) organizers would be responsible for managing the review of the papers submitted to their proposed special sessions (streams).

The Call for Papers for ICOTA 8 can be found in the conference web site and in EUROPT Newsletter N.17:

http://www.iam.metu.edu.tr/EUROPT/Newsletter17-EUROPT.pdf

Awards and Nominations

• MSSIP 2010
EURO Management Science Strategic Innovation Prize on the topic of Optimization in Telecommunications

(CALL for APPLICATIONS)

Prize. The MSSIP Prize is awarded for an outstanding innovative contribution to Management Science/OR each year when a EURO Conference takes place. This time the subject is Optimization in Telecommunications and the prize will be awarded at the EURO 2010 Conference taking place in Lisbon (Portugal). The submitted work should consist of a recent paper in which a theoretical result or a practical implementation is explained.

Sponsor. The prize is sponsored by SAP AG (12000 Euro).

Submissions in electronic form should be sent before 1 January 2010 to the Jury Chair, Eric Gourdin, Senior Expert in Network Optimization France Telecom, Orange Labs RD: eric.gourdin@orange-ftgroup.com

Aims. The prize is intended to recognize the role of Operational Research/Management Science in the context of modern telecommunications. The world of telecommunications has changed drastically over the last decade. These changes have been caused by several factors. On the one hand, technological evolutions allow to increase constantly the bandwidth offered to the communications and to access to network services always more easily from many different places. On the other hand, the telecommunication market has become more open and many actors can pretend to play an important role in the telecommunication business. Finally, the telecommunication industry has also been driven by the new needs of the populations and the companies wishing to exchange always more information in a wide variety of situations.

To provide efficient new services, the various actors involved in the telecommunication business are putting a lot of energy to design and deploy quickly complex network architectures combining many different technologies and sometimes based on existing networking infrastructures. Many difficult decisions have to be taken on various time scales to produce and maintain a comprehensive layer of telecommunications technologies able to address uncertain demand scenarios, to offer connectivity and bandwidth requirements, or more generally some Quality of Service (QoS), and to resist to a set of most likely failure

scenarios. End-users wish to remain connected, to be uniquely and safely identified and to access their own private content, wherever they are, in several places or even when they move from one place to another. Radio networks and wireless equipments must also be deployed to allow everyone to access to network facilities in the best possible conditions. Rich multimedia contents (TV, video on demand, video streaming,) will be more and more accessed through the alternative media provided by telecommunication networks causing huge amounts of data to travel in the networks and causing potential congestions. Operational Research and Management Science is clearly a key feature that can make quite a difference in designing and managing efficiently all these networks. However, the underlying optimization problems are, most of the time, very difficult and the size of the real instances is often huge. The research has always been very active in the field of telecommunication network optimization. For all the above-mentioned reasons, the field has regained a lot of interest recently and many new or different challenging optimization problems have emerged and have been more or less successfully investigated. However, there are still many difficult questions to address and the scientific community will surely contribute to find better answers. This prize is intended for some major contribution on a recent telecommunication problem. The submission should be a single or jointly authored unpublished paper describing either a successful application of known OR/MS methodologies to a real problem in the broadly defined area of Optimization in Telecommunications or novel methodologies that have been developed in order to solve relevant problems in this area. Innovative and strategically relevant approaches and results will be privileged given the nature of the prize.

- **EEPA 2010 – EURO Excellence in Practice Award 2010**

(LAST ANNOUNCEMENT)

PURPOSE. The purposes of the competition are to:

- recognise outstanding accomplishments in the practice of Operational Research,
- attract more application-oriented papers to EURO Conferences,
- promote the practice of Operational Research in general.

GUIDELINES. All interested authors are invited to submit a detailed description of an application of Operational Research which has original features, whether in methodology, application or implementation. This may be in the form of a paper written for publication (although not necessarily published at the time of submission), a client report, or other appropriate documentation. The documentation must describe the work in a way which illustrates how it meets the criteria outlined below. The age limit for published papers is four years. The work must not have been submitted concurrently to another competition. The application is open to Operational Research specialists from any part of the world.

SUBMISSION. The deadline for the submission of applications is JANUARY 31, 2010

All the information can be found in the conference web site and in EUROPT Newsletter N.17:

http://www.iam.metu.edu.tr/EUROPT/Newsletter17-EUROPT.pdf

Job opportunities

Three FACULTY POSITIONS: Université catholique de Louvain (Louvain-la-Neuve, Belgium) Applied Mathematics UCL invites applications for several faculty position in Applied Mathematics.

- 953 - Discrete Mathematics: combinatorial optimization, algorithmic complexity, graph and network theory, information and coding theory, etc.
- 951 - Dynamical Systems: systems and control, identification, mathematical modelling, stochastic processes and differential equation, etc.
- 952 - Quantitative Energy Economics (GDF-SUEZ Chair).

Applicants should have a wide area of interest and a good record in research and teaching. They should have a doctoral degree, postdoctoral experience, and a recognized scientific publications record. Appointment level will depend on the candidates and their records of accomplishment. Applicants should be able to teach in English but are also expected to teach in French, possibly after a transition period.
Depending on his background, the successful candidate will be affiliated with the newly established research institutes ICTEAM and/or IMMAQ. For more information on some of the existing research activities see: http://www.uclouvain.be/en-core.html, http://www.uclouvain.be/en-csam.html, and http://www.uclouvain.be/inma.

Venue. The 575-year-old Université catholique de Louvain (UCL) is located on the university campus of Louvain-la-Neuve, 30km south of Brussels. The campus has over 20,000 students and about 5,000 members of staff. It is the largest university in the French-speaking part of Belgium. The university hosts research programs in the different topics listed above. According to various ranking, UCL is in the top-10 of European universities for Technology, and Belgium is in the top-3 countries for academic research.

Contact. Further information about the positions can be obtained from Professor Vincent Blondel, Email: vincent.blondel@uclouvain.be

Applications. Applicants are invited to follow the application procedure described at
http://www.uclouvain.be/en-97537.html
Deadline. The application deadline is January 15, 2010.

Invited Short Note

The material of this section is kindly offered by professor Yurii Nesterov, Center for Operations Research and Econometrics (CORE), Catholic University of Louvain (UCL), 34 voie du Roman Pays, 1348 Louvain-la-Neuve, Belgium

"SIMPLE BOUNDS for BOOLEAN QUADRATIC PROBLEMS"

by Yurii Nesterov*

E-mail: nesterov@core.ucl.ac.be

1 Semidefinite relaxations

In this paper we consider different relaxations of the following combinatorial problem:

$$\text{Find } f^* = \max_{x \in R^n} \{\langle Qx, x\rangle : \; x^{(i)} = \pm 1, \; i = 1, \ldots, n\}, \tag{1}$$

where Q is a symmetric positive semidefinite $n \times n$ matrix (notation $Q \succeq 0$), and $\langle \cdot, \cdot \rangle$ is the standard inner product in R^n:

$$\langle x, y \rangle = \sum_{i=1}^{n} x^{(i)} y^{(i)}.$$

This notation is used for inner products in different vector spaces. Hence, its meaning can be established by the spaces containing the arguments. For example, for two $n \times n$ matrices X and Y we have

$$\langle X, Y \rangle = \sum_{i,j=1}^{n} X^{(i,j)} Y^{(i,j)}.$$

Similarly, we denote $\|x\| = \langle x, x \rangle^{1/2}$. In the rest part of the paper, without loss of generality, we assume that all diagonal entries of matrix Q are positive.

It is well known that problem (1) is NP-hard. Nevertheless, we can find some bounds for the value f^* in polynomial time. The simplest bound for f^* is based on the maximal eigenvalue of matrix Q:

$$\lambda_{\max}(Q) \;\; \leq \;\; f^* \leq n \cdot \lambda_{\max}(Q). \tag{2}$$

Indeed, since $Q \succeq 0$, we get

$$\begin{aligned} \lambda_{\max}(Q) \;\; &= \;\; \max_x \{\langle Qx, x\rangle : \; \|x\| \leq 1\} \;\; \leq \;\; \max_x \{\langle Qx, x\rangle : \; |x^{(i)}| \leq 1, \; i = 1, \ldots, n\} \\ &= \;\; f^* \;\; \leq \;\; \max_x \{\langle Qx, x\rangle : \; \|x\| \leq \sqrt{n}\} \;\; = \;\; n \cdot \lambda_{\max}(Q). \end{aligned}$$

Note that the relative accuracy of bounds (2) is equal to n.

Much better bounds can be obtained by the *random hyperplane* technique [1]. Initially, it was proposed for a special version of problem (1) arising in Graph Theory (MaxCut). Later, in [2] these ideas were extended onto the general case (see also [4] and [3] for further developments). The main advantage of this approach consists in delivering the bounds for f^* with *constant* relative accuracy. In accordance to Theorem 2.3 [2],

$$\begin{aligned} f^* \;\; &= \;\; \tfrac{2}{\pi} \max_{X \in \mathcal{F}} \langle Q, \arcsin[X] \rangle, \\ \mathcal{F} \;\; &= \;\; \{X : \; X = X^T \succeq 0, \; d(X) = e\}, \end{aligned} \tag{3}$$

where $d(X) \in R^n$ is formed by diagonal entries of matrix X, vector $e \in R^n$ is composed by all ones, and $g[X]$ denotes a matrix with elements $g(X^{(i,j)})$, where $g(\cdot)$ is a univariate function. Note that for any $X \in \mathcal{F}$ we have

$$\arcsin[X] \;=\; X + \tfrac{1}{6}[X]^3 + \tfrac{3}{40}[X]^5 + \;\ldots\; \succeq\; X \tag{4}$$

(Corollary 3.2 [2]). On the other hand, any $x \in R^n$ with entries ± 1 defines a matrix $X = xx^T \in \mathcal{F}$. Since $Q \succeq 0$, we conclude that

$$\tfrac{2}{\pi}\psi^* \;\leq f^* \;\leq\; \psi^* \;\stackrel{\rm def}{=}\; \max_X \{\langle Q, X\rangle :\; x \in \mathcal{F}\}. \tag{5}$$

The above convex optimization problem is called *semidefinite relaxation* of problem (1). Note that ψ^* can be computed in polynomial time.

The most remarkable feature of the semidefinite relaxation consists in its very high persistence to any kind of improvements. Let us look at one of the possible attempts.

Consider a symmetric matrix $M(\xi) \in R^{n\times n}$, which depends linearly on parameter $\xi \in R^p$. Assume that $M(\xi) \succeq Q$. Then

$$\begin{aligned} f^* \;&=\; \max_{x\in R^n} \{\langle Qx, x\rangle :\; x^{(i)} = \pm 1,\; i = 1, \ldots, n\} \\ &\leq\; \max_{x\in R^n} \{\langle M(\xi)x, x\rangle :\; x^{(i)} = \pm 1,\; i = 1, \ldots, n\} \;\stackrel{\rm def}{=}\; \psi_M(\xi). \end{aligned}$$

Note that function $\psi_M(\xi)$ is convex. Therefore we can get an upper bound for f^* by solving a convex minimization problem:

$$f^* \;\leq\; \min_{\xi\in R^p} \{\psi_M(\xi) :\; M(\xi) \succeq Q\} \;\stackrel{\rm def}{=}\; \psi^*_M.$$

The only difficulty with this approach is related to computability of convex function $\psi_M(\xi)$. This, of course, depends on the structure of matrix $M(\xi)$. For example, if we choose this matrix diagonal, then clearly

$$\psi_D(\xi) \;=\; \langle e, \xi\rangle.$$

In this case we get the usual semidefinite relaxation:

$$\psi^*_D \;=\; \psi^*.$$

(We leave this statement as an exercise for the reader.)

Can we achieve more? It seems that the answer to this question is positive. Indeed, let us look at tridiagonal matrices. Let $\xi = (d_1, d_2) \in R^n \times R^{n-1}$. Assume that tridiagonal symmetric matrix $T(\xi)$ has d_1 on the first diagonal, and d_2 on the second one. Then

$$\psi_T(\xi) \;=\; \langle e, d_1\rangle + 2\sum_{i=1}^{n-1} |d_2^{(i)}|. \tag{6}$$

Proof. Indeed, if $x^{(i)} = \pm 1$, $i = 1, \ldots, n$, then

$$\langle T(\xi)x, x\rangle \;=\; \langle e, d_1\rangle + 2\sum_{i=1}^{n-1} d_2^{(i)} x^{(i)} x^{(i+1)}.$$

Let us define the values $x^{(i)}$ by the following recursion:

$$x^{(1)} \;=\; 1, \quad x^{(i+1)} \;=\; \mathrm{sgn}\left(d_2^{(i)} x^{(i)}\right),\; i = 1, \ldots, n-1.$$

Then clearly we obtain the value in the right-hand side of (6), and this value is the maximal possible one. □

Now we can define the tridiagonal semidefinite relaxation as follows:

$$\psi_T^* \;=\; \min_{\xi} \{\psi_T(\xi) :\; T(\xi) \succeq Q\}. \tag{7}$$

It is definitely not worse that ψ_D^* and it seems that for some Q it can be even better. However, the following result destroys any hope. For any $Q \succeq 0$ we have $\psi_T^* = \psi^*$.

Proof. Indeed, let us write the optimization problem (7) in the dual form:

$$\begin{aligned}
\psi_T^* \;&=\; \min_{\xi=(d_1,d_2)} \max_{X \succeq 0} \left\{ \langle e, d_1 \rangle + 2 \sum_{i=1}^{n-1} |d_2^{(i)}| + \langle X, Q - T(\xi) \rangle \right\} \\
&=\; \max_{X \succeq 0} \left\{ \langle Q, X \rangle + \min_{\xi=(d_1,d_2)} \left[\langle e - d(X), d_1 \rangle + 2 \sum_{i=1}^{n-1} (|d_2^{(i)}| - d_2^{(i)} X^{(i,i+1)}) \rangle \right] \right\}.
\end{aligned}$$

The internal minimization in d_1 gives the constraint $d(X) = e$. At the same time, minimization in d_2 requires

$$|X^{(i,i+1)}| \;\leq\; 1, \quad i = 1, \ldots, n-1.$$

However, for $X \in \mathcal{F}$ these inequalities are redundant. Thus, the dual to problem (7) is exactly the semidefinite relaxation problem in (5). □

One can think that this equivalence may be broken by an appropriate reordering of the variables. Unfortunately, this is not the case. Indeed, let P be an arbitrary $n \times n$ permutation matrix. Denote

$$\psi_T^*(P) \;=\; \min_{\xi} \{\psi_T(\xi) :\; T(\xi) \succeq PQP^T\}.$$

Then, by the same arguments as above, we can show that $\psi_T^*(P) = \psi^*$.

2 Polyhedral bounds

Thus, semidefinite relaxation has two main drawbacks. Firstly, it is difficult to improve its quality. Secondly, its computation is time consuming. We can try to use a simpler approximation to f^* by choosing in (3) $X = I$, where I identity matrix. Then we obtain

$$\langle Q, I \rangle \;\leq\; f^* \;\leq\; n \cdot \lambda_{\max}(Q). \tag{8}$$

This bound looks better than (2). However, it can be easily shown that its worst-case guarantee for the relative accuracy remain the same (consider $Q = ee^T$).

In the rest part of this paper we will try to improve the interval (8) keeping complexity of our estimates on a low level.

Denote by L an arbitrary square root of matrix Q:

$$Q = LL^T.$$

For example, this can be a low-triangular factor in Cholessky decomposition. Consider the following random vector:

$$\xi = \mathrm{sgn}\,[Lu],$$

where $u \in R^n$ is uniformly distributed on the unit sphere.

$$f^* \;\geq\; E(\langle Q\xi, \xi\rangle) \;=\; \tfrac{2}{\pi} \sum_{i,j=1}^{n} Q^{(i,j)} \arcsin\left(\frac{Q^{(i,j)}}{\sqrt{Q^{(i,i)}Q^{(j,j)}}}\right).$$

Proof. We need only to compute the expectation. Denote by l_i the ith column of the matrix L^T. Then

$$E(\langle Q\xi, \xi\rangle) \;=\; \sum_{i,j=1}^{n} Q^{(i,j)} E(\xi^{(i)}\xi^{(j)}).$$

Using the same reasoning as in Theorem 2.3 [2] we get

$$E(\xi^{(i)}\xi^{(j)}) \;=\; E(\mathrm{sgn}\,(\langle l_i, u\rangle) \cdot \mathrm{sgn}\,(\langle l_j, u\rangle)) \;=\; \tfrac{2}{\pi} \arcsin \tfrac{\langle l_i, l_j\rangle}{\|l_i\| \cdot \|l_j\|}.$$

It remains to note that $\langle l_i, l_j\rangle = Q^{(i,j)}$ and $\|l_i\| = \sqrt{Q^{(i,i)}}$. □

Now we can prove the main inequality.

Theorem 1. *For optimal value f^* of problem (1) we have the following bounds:*

$$\tfrac{2}{\pi} \sum_{i,j=1}^{n} Q^{(i,j)} \arcsin\left(\frac{Q^{(i,j)}}{\sqrt{Q^{(i,i)}Q^{(j,j)}}}\right) \;\leq\; f^* \;\leq\; \sum_{i,j=1}^{n} |Q^{(i,j)}|. \tag{9}$$

The relative accuracy of this interval does not exceed $\frac{\pi}{4}(1+\sqrt{n})$.

Proof. In view of Lemma 2, both inequalities in (9) need no justification. In order to estimate the relative accuracy of the interval, we bound the ratio

$$\rho \equiv \left[\sum_{i,j=1}^{n} Q^{(i,j)} \arcsin\left(\frac{Q^{(i,j)}}{\sqrt{Q^{(i,i)}Q^{(j,j)}}}\right)\right] \cdot \left[\sum_{i,j=1}^{n} |Q^{(i,j)}|\right]^{-1}$$

from below. Denote $D = [\mathrm{diag}\,(Q)]^{-1/2}$. Then, in view of inequality (4) we have

$$\sum_{i,j=1}^{n} Q^{(i,j)} \arcsin\left(\frac{Q^{(i,j)}}{\sqrt{Q^{(i,i)}Q^{(j,j)}}}\right) = \langle Q, \arcsin[DQD]\rangle \geq \langle Q, DQD\rangle.$$

Note that the ratio $\langle Q, DQD\rangle / \sum\limits_{i,j=1}^{n} |Q^{(i,j)}|$ is homogeneous of degree zero in Q. Therefore

$$\rho \;\geq\; \min_{Q}\{\langle Q, DQD\rangle : \sum_{i,j=1}^{n} |Q^{(i,j)}| = 1\}.$$

Denote $\sum\limits_{i=1}^{n} Q^{(i,i)} = S_1$ and $\sum\limits_{i\neq j} |Q^{(i,j)}| = S_2$. Note that $S_1 + S_2 = 1$, $S_1, S_2 \geq 0$. Then

$$\begin{aligned}
\langle Q, DQD\rangle \;&=\; S_1 + \sum_{i\neq j} \frac{(Q^{(i,j)})^2}{\sqrt{Q^{(i,i)}Q^{(j,j)}}} \geq S_1 + \frac{S_2^2}{\sum\limits_{i\neq j}\sqrt{Q^{(i,i)}Q^{(j,j)}}} \\
&=\; S_1 + \frac{S_2^2}{\left(\sum\limits_{i=1}^{n}\sqrt{Q^{(i,i)}}\right)^2 - S_1} \geq S_1 + \frac{S_2^2}{nS_1 - S_1} = 1 - S_2 + \frac{S_2^2}{(n-1)(1-S_2)}.
\end{aligned}$$

The minimum of the right-hand side is achieved for $S_2 = 1 - \frac{1}{\sqrt{n}}$. Thus, $\rho \geq \frac{2}{1+\sqrt{n}}$ and we conclude that

$$\frac{\sum\limits_{i,j=1}^{n} |Q^{(i,j)}|}{\frac{2}{\pi} \sum\limits_{i,j=1}^{n} Q^{(i,j)} \arcsin\left(\frac{Q^{(i,j)}}{\sqrt{Q^{(i,i)} Q^{(j,j)}}}\right)} \leq \frac{\pi}{2\rho} \leq \frac{\pi}{4}(1+\sqrt{n}).$$

□

Thus, we managed to obtain very simple bounds for the optimal value of problem (1). Note that each term of the sum in the left-hand side of inequality (9) is nonnegative. Therefore, our lower bound significantly improves the previously known bound $\langle Q, I \rangle$. As compared with the interval (8), the quality of our bound is much better. Note also, that bounds (9) are exact for all matrices of the form $Q = aa^T$, $a \in R^n$. Of course, the most interesting question for future research is how much we can advance in the quality of the bounds keeping their complexity on a reasonably low level.

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Editor's personal comments

Dear friends, as usual, this issue includes announcements of conferences, awards and nominations, and job opportunities sent by several colleagues and friends to whom I feel in great debt.
After a more than one year experience in editing EUROPT Newsletters, we have decided now to modify a bit their presentation changing the name of the section "Problem and Teaching Activities" (included in some of the previous issues). Now, we have a novel section called "Invited Short Note". From now on, in the same line of the previous goals, each issue includes a short note written by a prestigious researcher, specially invited for such purpose. We are sure that we can count with collaboration of the most acclaimed members of our Optimization Community. In this issue Professor Yurii Nesterov honors us with a note entitled "Simple bounds for boolean quadratic problems".
As it is referred above in the Words of the Chair of EUROPT Managing Board Professor Marco Lopez, Aveiro will host the 8th EUROPT Workshop (www.europt2010.com) which will be held in July 9-10,

immediately before EURO XXIV 2010 in Lisbon (http://euro2010lisbon.org/). We expect that this Workshop will become a very special celebration of the 10th anniversary of EUROPT. Particular attention to this event will be given along the next issues.
Finally, I would like to use this opportunity for wishing to all of you a very happy New Year.

On behalf of the Editorial Board of EUROPT Newsletter,
Domingos M Cardoso

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