



**EUROPT**

## Newsletter 13 of EUROPT

EUROPT - The Continuous Optimization Working Group of EURO

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



*December 2008*

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## Words from the chair

Dear Members of EUROPT, dear Friends,

I am very happy of addressing you some words in this new issue of our Newsletter, the second one edited by our friend Prof. Domingos Cardoso, with the unvaluable assistance of Prof. Tatiana Tchemisova. In this special occasion, I would like to express to all of you my best wishes for a Merry Christmas and a Happy New Year 2009. Also in these days, I would like to strongly thank the continuous support and advice of the Members of the Managing Board. They are especially important for me in my first steps as EUROPT Chair.

Now it is also time for proposing some challenging goals for the year 2009. The first one is related with the open processes for fixing the programs and curricula of the undergraduate studies and master courses, within the framework of the Bologna Plans for our European universities. Politicians use the following major argument for defending these risky changes: universities should update their curricula in order to give proper answers to the society demands, mainly in these crisis times. In this sense, our university degrees should provide the students with the convenient education, training and professional skills to take active part in the solution of the difficult challenging problems that our societies are facing in these times, Operations Research and Optimization must play an increasingly relevant role in the new curricula. Therefore, we have to be aware of the importance of this process, and to do our best for ensuring the presence of Optimization in the education of new generations.

The second goal, already announced in my previous letter, must be to improve our collaboration with EURO and with the many other scientific societies, throughout mutual cooperation in scientific events, as well as developing joint research projects.

In this direction let me bring to your attention some meetings organized by our friends of the EURO Working Group of Generalized Convexity (WGGC):

1. The "2nd International Conference on Nonlinear Analysis and Optimization", in Isfahan, Iran (May 13-15, 2009), organized by J. Zafarani and M. Fakhar. For more info, go to the Conference website <http://www.sci.ui.ac.ir/naop2009/>.
2. The "Advanced Course on Optimization: Theory, Methods, and Applications", in Bellaterra, Barcelona, Spain (July 20-24, 2009), organized by A. Daniilidis and J.E. Martinez-Legaz. A limited number of grants covering registration and accommodation are addressed to young researchers. More information is provided at <http://www.crm.cat/OPT2009/>

Let me remember that our efficient team of friends working for the progress of our website (<http://www.iam.metu.edu.tr/EUROPT/>), composed by Basak Akteke-Ozturk, Koksal Yucesoy, and Aysun Tezel, is continuously updating the information about all the events and activities in which EUROPT is involved. In particular you can find there the latest information about our 7th EUROPT Workshop "Advances in Continuous Optimization", to be held in Remagen, Germany, in July 3-4, the days previous to EURO XXIII 2009, in Bonn (<http://www.rheinahrcampus.de/Home.europt2009.0.html>). We kindly invite you to participate in this meeting, which should be considered as the annual meeting of our EUROPT family. Of course you are cordially invited to contribute to this workshop, also by giving a talk or by

organizing a session (with three speakers). If you like to organize such a session please contact the Chair of the Organizing Committee, Prof. Oliver Stein ([stein@wior.uni-karlsruhe.de](mailto:stein@wior.uni-karlsruhe.de)).

In the website, this Newsletter, and in EUROPT Newsletter N.12, you will also find information about the following Special Issues, happily finalized:

<http://www.iam.metu.edu.tr/EUROPT/MMOR%20Special%20Issue.pdf>

<http://www.iam.metu.edu.tr/EUROPT/PrefaceSpecialIssue-ContinuousOptimizationinFinance.pdf>

<http://www.iam.metu.edu.tr/EUROPT/PrefaceOMS.pdf>

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

## Forthcoming Events

**• 7th EUROPT Workshop on  
ADVANCES IN CONTINUOUS OPTIMIZATION  
Remagen, Germany,  
July 3 - 4, 2009**

<http://www.rheinahrcampus.de/europt2009>

This international workshop is organized by the EURO Working Group on Continuous Optimization (EUROPT; <http://www.iam.metu.edu.tr/EUROPT>) as a satellite meeting before the EURO XXIII conference in Bonn (<http://www.euro-2009.de>). The workshop covers all aspects of continuous optimization and will be held in Remagen, situated about 20 kilometers south of Bonn at the river Rhine.

### INVITED SPEAKERS:

- o Amir Beck (Technion, Israel)
- o Sven Leyffer (Argonne National Laboratory, USA)
- o Yurii Nesterov (Catholic University of Louvain, Belgium)
- o Juan Parra (University of Elche, Spain)
- o Leonidas Sakalauskas (University of Vilnius, Lithuania)
- o Philippe Toint (University of Namur, Belgium)

## **PROGRAM COMMITTEE:**

- o Marco A. Lopez (Chair, Alicante University, Spain)
- o Adil Bagirov (University of Ballarat, Australia)
- o Regina Burachik (University of South Australia)
- o Oleg Burdakov (Linkoping University, Sweden)
- o Tibor Illes (University of Strathclyde, UK)
- o Oliver Stein (Karlsruhe Institute of Technology, Germany)
- o Marc Teboulle (Tel-Aviv University, Israel)
- o Jan-J. Rueckmann (University of Birmingham, UK)
- o Annick Sartenaer (University of Namur, Belgium)
- o Gerhard-Wilhelm Weber (Middle East Technical University, Turkey)

## **ORGANIZING COMMITTEE:**

- o Oliver Stein (Chair, Karlsruhe Institute of Technology, Germany)
- o Mirjam Duer (Co-chair, TU Darmstadt, Germany)
- o Michael Hinze (University of Hamburg, Germany)
- o Juergen Kremer (RheinAhrCampus Remagen, Germany)
- o Kaisa Miettinen (University of Jyvaskala, Finland)
- o Claus Neidhardt (RheinAhrCampus Remagen, Germany)
- o Tatiana Tchemisova (University of Aveiro, Portugal)
- o Javier Toledo (University of Elche, Spain)
- o Gerhard-Wilhelm Weber (Middle East Technical University, Turkey)

## **IMPORTANT DAYS**

**Abstract submission:** April 10, 2009  
**Notification of acceptance:** April 20, 2009  
**Early Registration:** April 30, 2009  
**Conference:** July 3-4, 2009

- **Workshop on RECENT DEVELOPMENTS IN APPLIED  
PROBABILITY AND STATISTICS  
in the Memory of Professor Juergen Lehn  
Ankara, Turkey,  
April 23-24, 2009**

<http://www3.iam.metu.edu.tr/juergenlehn/>

Institute of Applied Mathematics (IAM) at Middle East Technical University (METU) and Department of Mathematics of Darmstadt Technical University organize a workshop on "Recent Developments in Applied Probability and Statistics" in the memory of Professor Juergen Lehn.

Professor Juergen Lehn passed away on September 29, 2008, at the age of 67. He supervised twenty six theses and as an author produced six books. Some of the most important institutions of German scientific society are associated with his name: The German Science Foundation (Deutsche Forschungsgemeinschaft - DFG) where he was a peer reviewer, the German Mathematical Association (Deutsche Mathematiker-Vereinigung - DMV) and its subsection Fachgruppe Stochastik, where he held various leading positions, and, especially, the celebrated Mathematical Science Institute of Oberwolfach (Mathematisches Forschungsinstitut Oberwolfach), where he was a leading scientist and treasurer.

Juergen Lehn collaborated more than twenty years with the Department of Mathematics, METU, and worked in the establishment of the Institute of Applied Mathematics. The workshop will take place at both institutions, on April 23-24, 2009.

**Keynote speakers are:** Luc Devroye (Montreal), Ursula Gather (Dortmund), Ralf Korn (Kaiserslautern)

There will also be a panel discussion on the Impact of Applied Mathematics on Science and Technology.

Further talks related to any area of Applied Mathematics and Statistics are welcome.

**Deadline for submission of abstracts:** February 27, 2009.

- **5th International Vilnius Conference and EURO-Mini Conference "Knowledge-Based Technologies and OR Methodologies for Strategic Decisions of Sustainable Development" (KORSD-2009), Vilnius, Lithuania, September 30 - October 3, 2009**

[www.mii.lt/KORSD-2009](http://www.mii.lt/KORSD-2009)

**Scope:** The scope of International Vilnius conferences on sustainable development is to encourage and facilitate interdisciplinary communication, emphasising those areas that provide the most benefits for state-of-the-art of sustainability development including sustainability methodology for sustainable economics and sustainable human life connected with knowledge-based and economic technologies.

The main focus of this conference is to provide a launch pad to collaborate between the young, dynamic and experienced researchers and practitioners from disciplinary and inter-disciplinary areas to come together and help the sustainable development with their models, solutions and share their in-valuable experiences.

**Publications:**

\* The volume of Conference Proceedings will be published, indexed/abstracted in Thompson ISI Proceedings Web of Science DB, and delivered during the Conference.

\* The organizers will prepare a special issues in top-rated journals based on a thorough review process of papers presented at the Conference and submitted by the authors.

**Submissions:** Three kinds of contributions are welcome:

- \* Submission of abstract (0.3 page) for communication. After acceptance a presenter deliver 25 minutes communication during the contributed session.
- \* Submission of contributed papers (6 pages A4). The accepted papers will be published in a Conference Proceedings, which will be indexed /abstracted in ISI Proceedings and delivered during the Conference (example and guidelines on the site).
- \* Proposal for a stream session.

**Topics:**

We encourage those interested in the following topics to familiarize themselves with the trends and to work towards a common attitude with respect to:

- Knowledge-based technologies for sustainable decision making
- Intelligent decision support in assessing sustainable development
- Societal complexity and sustainable development
- Simulation of sustainable development of transport, industry and economics
- Information communication technologies for sustainable development
- Assessing global climate changes
- Long-term trends and sustainability transition
- Sustainable development in Developing Countries
- Interaction and coordination of sectorial and national sustainable development strategies
- Globalization and cultural identity issues.

Contributions on other topics of sustainability theory and practice are also welcome.

**Invited Speakers and Lectures:**

Prof. Dr. Leen Hordijk, Executive Director IIASA, and Director JRC-IES: "Global Issues in SD and Monitoring of Trends";

Prof. Dr. Lea Kauppi, Director General of the Finnish Environmental Research Institute (SYKE): "Sustainable Development on a National Level - The Finnish Approach";

Prof. Dr. Nebojsa Nakicenovic, IIASA (Leader Energy Programme and Transitions to New Technologies) and Vienna University of Technology: "The Changing World: Energy, Climate and Social Futures";

Prof. Dr. Alan Belward, Head of Global Environment Monitoring Unit, JRC-IES: "Sustainable Development in Developing Countries: The ACP (African-Caribbean-Pacific) Observatory".

**Organizing Institutions:**

- European Association of Operational Research Societies (EURO);
- EURO Working Group OR for Development;
- Lithuanian Operational Research Society (LitORS);
- German OR Society (GOR);
- Vilnius Gediminas Technical University, Vilnius, Lithuania;

- Institute of Mathematics & Informatics;
- EURO Working Group on Methodology of Societal Complexity

**Contact:** KORSD-2009, Institute of Mathematics & Informatics, Akademijos st 4, Vilnius 08663, Lithuania; E-mail: [korsd2009@ktl.mii.lt](mailto:korsd2009@ktl.mii.lt)

### IMPORTANT DAYS

- Proposals for stream session organizing:** March 5, 2009
- Registration/abstract submission (for those submitting papers to Proceedings):** April 15, 2009
- Paper (6 A4 pages) submission for Proceedings:** May 10, 2009
- Paper acceptance notification:** July 15, 2009
- Early registration fee payment:** September 5, 2009
- Conference:** September 30 - October 3
- Full paper submission to the special issues in top-rated journals:** November 10, 2009

### • CPAIOR'09

## Sixth International Conference on Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems Pittsburgh, PA, USA May 27-31, 2009

<https://wpweb2.tepper.cmu.edu/rlang/CPAIOR09/index.html>

After a successful series of five international workshops (Ferrara, Paderborn, Ashford, Le Croisic, and Montreal) and five international conferences (Nice, Prague, Cork, Brussels, and Paris), the sixth international conference on Integration of Artificial Intelligence and Operations Research techniques in Constraint Programming for Combinatorial Optimization Problems will be held in Pittsburgh, Pennsylvania (USA), May 27-31, 2009.

The aim of the conference is to bring together interested researchers from constraint programming (CP), artificial intelligence (AI) and operations research (OR) to present new techniques or new applications in combinatorial optimization and to provide an opportunity for researchers in one area to learn about techniques in the others. A main objective of this conference series is also to give these researchers the opportunity to show how the integration of techniques from different fields can lead to interesting results on large and complex problems. Therefore papers that actively combine, integrate, or contrast approaches from more than one of the areas are especially solicited. High quality papers from a single area are also welcome, provided that they are of interest to other communities involved. Finally, application papers showcasing CP/AI/OR techniques on innovative and challenging applications or experience reports on such applications are strongly encouraged.



CP-AI-OR'09 will be preceded by a day of workshops, and a two-day Master Class where leading researchers give introductory and overview talks. The Master Class is intended for PhD students, researchers, and practitioners.

**Topics:** The program committee invites submissions that include but are not limited to the following topics:

Relaxation methods, e.g. constraint propagation, cutting planes, global constraints, graph algorithms, dynamic programming, Lagrangean and convex relaxations, heuristic functions based on constraint relaxation. Search methods, e.g. branch and bound, intelligent backtracking, incomplete search, randomized search, column generation and other decomposition methods, local search, meta-heuristics. Integration methods, e.g. static/dynamic problem decomposition, solver communication, transformations between models and solvers, collaboration between concurrent methods, models, and solvers. Modeling methods, e.g., comparison of models, symmetry breaking, uncertainty, dominance relationships. Innovative Applications of CP/AI/OR techniques. Implementation of CP/AI/OR techniques and Optimization Systems. **Submission:** Paper submissions are of two types: Full papers and extended abstracts.

Full papers should present original unpublished work and be at most 15 pages in length, and should be prepared in the format used for the Springer Lecture Notes in Computer Science series (<http://www.springer.de/comp/lncs/authors.html>). These papers will undergo rigorous review. The proceedings will be published in the Springer Lecture Notes in Computer Science series. All papers are to be submitted electronically in a PDF or PS format by following the instructions at the URL <http://www.easychair.org/conferences/?conf=cpaior2009>.

Extended abstracts should be 1 or 2 pages in length and may present preliminary work or work already published in other outlets. The extended abstracts will be published in the conference volume, and must be prepared using the same format as full papers. A submission representing work submitted or published in another outlet should state that outlet. Extended abstracts will be reviewed to ensure appropriateness for the conference.

Conference presentations will be either long (20 to 30 minute) presentations, short (15 to 20 minute) presentations, or poster presentations. We expect most extended abstracts to be short or poster presentations.

CPAIOR 2009 will accept full papers and extended abstracts. Both types will be presented during the conference and published in the Proceedings.

### IMPORTANT DAYS

#### Timeline for Papers:

- > January 10, 2009 - Abstract due for full papers
- > January 16, 2009 - Full papers due
- > February 21, 2009 - Notification of acceptance for full papers
- > March 7, 2009 - Final version of full papers due

#### Timeline for Extended Abstracts:

- > February 15, 2009 - Extended abstracts due
- > March 1, 2009 - Notification of acceptance for extended abstracts
- > March 7, 2009 - Final version of extended abstracts due

- **COSI'2009: Colloque sur l'Optimisation et les Systemes d'Information**

**Annaba, Algeria, May 25-27, 2009**

<http://www.isima.fr/cosi/cosi2009/index2009.php>

COSI'2009 is the 6th edition of a series of annual conferences on research and development in optimization and information systems. COSI'2009 aims at continuing the tradition of the previous five editions in fostering the debate on new issues and research directions in these areas. More details are available at <http://www.isima.fr/cosi/cosi2009/index2009.php>.

**IMPORTANT DAYS**

**Abstract submission:** February 4, 2009

**Papers submission:** February 11, 2009

**Paper acceptance notification:** April 7, 2009

**Reception of the final version of the papers:** April 24, 2009

**Conference:** May 25-27, 2009

- **MISTA 2009: 4th Multidisciplinary International Scheduling**

**Conference: Theory and Applications**

**Dublin, Ireland, August 10-12, 2009**

<http://www.mistaconference.org/2009/cfp/index.html>

**Scope and aims:** This conference is the 4th in a series of conferences (the first took place in Nottingham, UK in August 2003, the 2nd in New York in July 2005 and the 3rd in Paris in 2007) that serves as a forum for an international community of researchers, practitioners and vendors on all aspects of multi-disciplinary scheduling. The conference will cover, but not be limited to, the following disciplines:

Artificial Intelligence, Computer Science, Engineering, Management, Manufacturing, Mathematics, Operational Research

The aim is to bring together scheduling researchers and practitioners from all the disciplines that engage with scheduling research. The scope of the conference includes (but is not limited to):

Agent Based Scheduling; Algorithmics; Applications; Automated Reasoning; Batch Scheduling; Commercial Packages; Complexity of Scheduling Problems; Constraint Logic Programming; Delivery Scheduling; Evolutionary Algorithms; Heuristic Search; Knowledge-Based Systems; Large Scale Scheduling; Local Search; Machine Scheduling; Meta-heuristic Search; Multi-processor Scheduling; Process Scheduling; Production Scheduling; Real World Scheduling; Real-Time Scheduling; Rostering; Rule-Based Expert Systems; Shop-Floor Scheduling; Sports Scheduling; Theoretical Scheduling; Timetabling; Transport Scheduling; Vehicle Routing; Submission Details

**Submission:** Authors are invited to submit papers in one of two categories

**Full Papers:** These can be up to 10 pages and will be accepted as full papers at the conference.

**Extended Abstracts:** These shorter papers (to a maximum of 3 pages) will give you the opportunity to present your work at the conference. The abstracts will also appear in

the conference proceedings. Both categories of papers will be invited to submit suitably revised and extended versions to a post conference issue of the Journal of Scheduling.

**Formatting Guidelines:** We will be providing both Word templates and Latex styles. We will only accept PDF file that have been formatted using these formatting styles.

#### IMPORTANT DAYS

(All dates are provisional at the moment)

**Deadline submission:** 15th Jan 2009;

**Decisions to authors:** 15th Mar 2009;

**Camera ready papers due:**30th May 2009;

**Conference:** 10th - 12th Aug 2009

- **23-rd EUROPEAN CONFERENCE ON OPERATIONAL RESEARCH**

**Bonn, Germany, July 5 - 8, 2009**

<http://www.euro-2009.de/>

#### (SECOND ANNOUNCEMENT)

The 23rd European Conference on Operational Research, EURO XXIII, is organized by the Gesellschaft fuer Operations Research (GOR) e.V. in co-operation with the University of Siegen and will be held in the Gustav-Stresemann Institute and the Maritim Hotel in Bonn. The Programme and Organising Committee are preparing a high quality academic programme of the Conference. In addition to this, you will have an excellent opportunity to exploit the city and vicinity of Bonn! A history of more than 2000 years has given the city most appealing and memorable facets. Bonn is an international center of science, arts and politics. You will enjoy the picturesque impressions along the romantic Rhine, Bonn's international and political life or the magnificent Ahr wine region. Culture is inseparably linked to the works of Ludwig van Beethoven, but also of Robert Schumann, August Macke and Ernst Moritz Arndt.

#### IMPORTANT DAYS

**Submission for abstracts starts:** October 2008

**Deadline for abstract submission:** March 1, 2009

**Notification of acceptance:** March 31, 2009

**Deadline for early registration:** April 1, 2009

**Deadline for author registration (for inclusion in the programme):** April 15, 2009

**Conference:** July 5-8, 2009

All the information can be found in the conference web site and in EUROPT Newsletter N.12 <http://www.iam.metu.edu.tr/EUROPT/Newsletter12-EUROPT.pdf>

- **VIII BRAZILIAN WORKSHOP ON CONTINUOUS OPTIMIZATION**

**Mambucaba, Rio de Janeiro, Brazil,  
July 13-17, 2009**

[http://www.impa.br/opencms/pt/eventos/store/evento\\_0902](http://www.impa.br/opencms/pt/eventos/store/evento_0902)

**(SECOND ANNOUNCEMENT)**

**BASIC INFORMATION:** The VIII Brazilian Workshop on Continuous Optimization will take place at Hotel do Bosque, in Mambucaba, near Angra dos Reis (about 200 km from Rio de Janeiro), between July 13 and 17, 2009. Subjects to be discussed encompass theoretical, computational and implementation issues, in both linear and non-linear programming, including variational inequalities, complementarity problems, nonsmooth optimization, vector optimization, generalized equations, etc.

The backbone of the workshop will consist of plenary lectures, offered by invited speakers, of 45 minutes each. There will be also a limited number of contributed talks, of 25 minutes each. Those interested in contributing a talk should send an abstract, either by regular or electronic mail, to the addresses indicated below, no later than February 28, 2009. Acceptation of the contributed talks will be informed no later than March 15, 2009.

All the information can be found in the conference web site and in EUROPT Newsletter N.12 <http://www.iam.metu.edu.tr/EUROPT/Newsletter12-EUROPT.pdf>

- **Second Global Conference on Power and Optimization PCO2009  
June 1-3,2009, Bali, Indonesia**

<http://www.engedu2.net>

**(SECOND ANNOUNCEMENT)**

**IMPORTANT DAYS**

**Receipt of Full Papers :** February 1, 2009  
**Notification for Peer Review :** March 1, 2009  
**Camera ready Paper :** April 15, 2009  
**Registration with full payment :** April 15, 2009

All the information can be found in the conference web site and in EUROPT Newsletter N.12 <http://www.iam.metu.edu.tr/EUROPT/Newsletter12-EUROPT.pdf>

# Call for Papers

- *European Journal of Industrial Engineering (EJIE)*

## **Special Issue on: "Multidisciplinary Design Optimisation: Bridging the Gap Between Theory and Practice from an Industrial and Systems Engineering Perspective"**

### **Scope:**

In recent years, it has been recognized that industry is paying more and more attention to the formalization of complex system analysis and design by seeking better ways to improve efficiency in the design process to meet time, cost, and performance requirements. Multidisciplinary Design Optimization (MDO) has emerged as an industrial and systems engineering discipline that focuses on the development of new design and optimization strategies for complex systems. The design and optimization of complex, high-performance systems require the use of more and more sophisticated modelling tools. Nevertheless, their scope is generally limited to a single disciplinary domain or to specific subsystems. In this context, the search for the best design solution is in general driven by the trade-offs between different teams; each one specialized in a discipline or in a specific system aspect. The overall optimization performance is pursued with an amount of methodological, organizational, and technical difficulties such as complex modelling and representation issues, computational efforts, and close collaboration between different teams. MDO is considered a methodology for complex systems design that coherently exploits the synergism of mutually interacting phenomena and domains. The main scientific challenges of MDO are concerned with the development of strong and efficient numerical techniques and with the computational organization required for the necessary coupling of models and tools employed in interacting disciplines. Interest in MDO has intensified in the last years, as recent advances in computational, optimization, and simulation technology have presented significant opportunities to solve MDO problems. Different research streams are highlighting many topics of common interest, such as modelling and optimization methodologies, uncertainty and robustness analysis, integration techniques, approximation and metamodeling methods. Reducing time and cost of the design while pursuing both accuracy and robustness of solutions and the integration between structural and control design aspects is still of primary interest for the project teams. However, the use of these methods for coupled multidisciplinary problems remains an open challenge in many industrial engineering areas, even if innovative methods and software solutions are now available to be used in multidisciplinary applications. This special issue provides the threefold opportunity to explore new perspectives, to receive a “feedback from the field” trying to bridge the gap between theory and practice of MDO, and to promote and transfer the knowledge of methods for MDO. We are inviting people from both academia and industry to submit papers on their recent research experience considering emergent approaches and results to be applied to MDO problems.

### **Subject Coverage:**

Suitable topics include but are not limited to:

- development of suitable formulation of multidisciplinary design problems;

- optimization methods incorporating both structural and control design;
- simulation-optimization methods;
- robust optimization;
- metamodelling methods and metamodels management;
- sensitivity analysis;
- practical applications of MDO techniques

### Notes for Prospective Authors:

Submitted papers should not have been previously published nor be currently under consideration for publication elsewhere. All papers submitted to the special issue will be reviewed in accordance with the standard procedures of EJIE. To ensure the timely completion of the special issue, only papers requiring minor revision will be accepted. A guide for authors, sample copies and other relevant information for submitting papers are available on the Author Guidelines page.

**Editors and Notes:** You may send one copy in the form of an MS Word file attached to an e-mail (details in Author Guidelines) to the address: [ejie.mdo@gmail.com](mailto:ejie.mdo@gmail.com) with an email copy only to: IEL Editorial Office - E-mail: [ejie@inderscience.com](mailto:ejie@inderscience.com) Please include in your submission the title of the Special Issue, the title of the Journal and the name of the Guest Editors

### Guest Editors:

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- *Optimization*

## Advances in Continuous Optimization to participants of 23rd European Conference on Operational Research (EURO XXIII 2009) and the 7th EUROPT Workshop "Advances in Continuous Optimization"

At the occasion of the 23rd European Conference on Operational Research, EURO XXIII 2009, July 5-8, 2009, Bonn, Germany (<http://www.euro-2009.de>) and the 7th EUROPT Workshop "Advances in Continuous Optimization", July 3-4, 2009, Remagen, (<http://www.rheinahrcampus.de/europt2009>), the journal *Optimization* invites submissions of papers to a special issue on continuous optimization. The papers may include theoretical and applied contributions in fields such as linear, nonlinear, stochastic, parametric and dynamic programming as well as control theory.

**Topics:** Topics are drawn from, but not limited to, the following areas of optimization:  
 o linear programming,

- o semidefinite and conic programming,
- o semi-infinite programming,
- o stochastic programming,
- o global optimization,
- o nonsmooth optimization,
- o multiobjective optimization,
- o optimization in economics,
- o optimization in data mining and machine learning,
- o continuous optimization for inverse problems,
- o continuous optimization in the financial sector.

**Guest Editors:** Prof. Dr. Gerhard-Wilhelm Weber, Dr. Erik Kropat.

**Important Dates:** Submission deadline of full papers: September 1, 2009.

**Submission Details:** Participants of EURO XXIII and 7th EUROPT Workshop “Advances in Continuous Optimization” are cordially invited to submission. Please note that only contributions of registered participants can be accepted. The format of manuscripts for “Optimization” as well as guidelines and templates can be found on the web page of Taylor & Francis, the publisher of the journal:

<http://www.tandf.co.uk/journals/titles/02331934.asp>.

All papers submitted for publication will be carefully refereed.

For submission of your paper and in case of any question please contact by e-mail one of the following guest editors:

Prof. Dr. Gerhard-Wilhelm Weber, Institute of Applied Mathematics, Middle East Technical University, 06531 Ankara, Turkey, E-mail: [gweber@metu.edu.tr](mailto:gweber@metu.edu.tr)

Dr. Erik Kropat, Department of Mathematics, University Erlangen-Nuremberg, 91058 Erlangen, Germany, E-mail: [kropat@am.uni-erlangen.de](mailto:kropat@am.uni-erlangen.de)

- *Journal of Heuristics*

### Special issue on Hyper-heuristics in Search and Optimisation

<http://www.cs.nott.ac.uk/exo/specialissue/jheur.html>

**Aim and Scope:** Despite the significant progress in building search methodologies for a wide variety of application areas so far, such approaches still require specialists to integrate their expertise in a given problem domain. Many researchers from computer science, artificial intelligence and operational research fields have already acknowledged the need for developing automated systems to replace the role of a human expert in such situations. One of the main ideas for automating the design of heuristics requires

the incorporation of learning mechanisms into algorithms to adaptively guide the search. Both learning and adaptation processes can be realized on-line or off-line, and be based on constructive or perturbative heuristics. There is an emerging search and optimization tool in this line of thinking: hyper-heuristics. Hyper-heuristics can be thought of as "heuristics to select/adapt/generate heuristics". They are techniques that explore a search space of heuristics. Therefore, they differ from most applications of meta-heuristics which explore a search space of solutions. There might be multiple heuristics from which one can choose for solving a problem, and each heuristic has its own strength and weakness. The idea is to automatically devise algorithms by combining the strength and compensating the weakness of known heuristics. The approach is motivated by the aim of raising the level of generality at which search systems can operate, with the end goal of obtaining methods applicable to a wider range of problem domains than is possible today.

The aim of this special issue is to reflect the most recent advances in the field, and increase the awareness of the computing community at large on the possibilities of raising the level of generality of search methodologies.

**Topics of interests** include (but are not limited to):

- Hyper-heuristics
  - o applications and new challenging domains
  - o classifications or categorisations of approaches
  - o evolution of heuristics (by genetic programming)
  - o issues in multi-objective, discrete and continuous optimisation
  - o integration of machine learning techniques (e.g. reinforcement learning, classifier systems, neural networks, and others)
  - o new frameworks for better utilization of local search components
  - o scalability issues
  - o parallel models
- Related approaches
  - o adaptive and self-tuning algorithms
  - o adaptive multi-meme algorithms
  - o algorithm portfolios
  - o model-based search
  - o reactive search

**Guest editors:**

Gabriela Ochoa,

Ender Ozcan (<http://www.cs.nott.ac.uk>),

**IMPORTANT DAYS**

**Manuscript submissions:** March 1st, 2009

**Notification of acceptance:** July 1st, 2009



- *Set-Valued and Variational Analysis: Theory and Applications*  
**Introducing Changes to Set-Valued Analysis**  
<http://www.mathprog.org/prz/boh.htm>>[www.mathprog.org/prz/boh.htm](http://www.mathprog.org/prz/boh.htm)

The Springer ([www.springer.com](http://www.springer.com)) journal "Set-Valued Analysis" has undergone many changes which will become effective with the first issue in 2009. Please see below for the most notable changes to this journal.

**New Title:**

*Set-Valued Analysis* will be *Set-Valued and Variational Analysis: Theory and Applications*

**New Co-Editor-in-Chief:**

Boris Mordukhovich joins Biagio Ricceri as Co-Editor-in Chief.

**New Aims and Scope:**

The journal of Set-Valued and Variational Analysis: Theory and Applications is devoted to variational aspects of mathematical analysis and its applications, and to all aspects involving set-valued mappings and its related topics. The journal aims to serve both specialists in and users of set-valued and variational analysis, promoting strong interaction between them, with particular emphasis on applications.

The scope of the journal includes variational principles and their applications to mathematical sciences, operations research, economics, applied sciences, and engineering; set-valued and generalized differential calculus; methods of set-valued and variational analysis in constrained optimization, calculus of variations, and optimal control of ordinary differential, functional differential, and partial differential equations; variational inequalities and their generalizations; variational convergence; fixed points of set-valued mappings; selections and parameterizations; differential, integral, and operator inclusions; multiobjective optimization and equilibria; viability theory; numerical and computational aspects of set-valued and variational analysis; set-valued and variational aspects of geometry of Banach spaces; random set-valued and variational analysis; variational and set-valued techniques in the presence of symmetry; methods of variational and set-valued analysis in models of mechanics, systems control, economics, computer vision, and finance.

**New Editorial Board:**

- Z. Artstein, Weizmann Institute of Sciences, Israel
- H. Attouch, Univ. Montpellier II, France
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- R. J-B. Wets, Univ. of California, USA
- Q. J. Zhu, Western Michigan Univ., USA

**New ISSN's:**

The new ISSN numbers will be:

Print: 1877-0533

Online: 1877-0541

## Awards and Nominations

- **2009 Beale-Orchard-Hays Prize for excellence in computational mathematical programming**

<http://www.mathprog.org/prz/boh.htm>>[www.mathprog.org/prz/boh.htm](http://www.mathprog.org/prz/boh.htm)

Nominations are invited for the 2009 Beale-Orchard-Hays Prize for excellence in computational mathematical programming.

The Prize is sponsored by the Mathematical Programming Society, in memory of Martin Beale and William Orchard-Hays, pioneers in computational mathematical programming.

**Eligibility:**

Nominated works must have been published between Jan 1, 2006 and Dec 31, 2008, and demonstrate excellence in any aspect of computational mathematical programming. 'Computational mathematical programming' includes the development of high-quality mathematical programming algorithms and software, the experimental evaluation of mathematical programming algorithms, and the development of new methods for the empirical testing of mathematical programming techniques.

**Award:**

The 2009 Prize will be awarded at the awards session of the International Symposium on Mathematical Programming, to be held August 23-28, 2009, in Chicago, Illinois, USA. Information about the Symposium can be found at <http://www.ismp2009.org/>

**Prize Committee:**

The 2009 Prize Committee consists of Erling Andersen, Mosek Philip Gill, University of California San Diego Jeff Linderoth, University of Wisconsin Madison Nick Sahinidis (chair), Carnegie Mellon University

Nominations can be submitted electronically or in writing, and should include detailed publication details of the nominated work. Electronic submissions should include an attachment with the final published version of the nominated work. If done in writing, submissions should include four copies of the nominated work. Supporting justification and any supplementary material are strongly encouraged but not mandatory. The Prize Committee reserves the right to request further supporting material and justification from the nominees.

**Submission:**

Nominations should be submitted to:

Nick Sahinidis, Department of Chemical Engineering, Carnegie Mellon University, 5000 Forbes Avenue, Pittsburgh, PA 15213, USA

Email: [sahinidis@cmu.edu](mailto:sahinidis@cmu.edu)

**Deadlines:**

January 15, 2009.

- **EURO Doctoral Dissertation Award EDDA 2009**  
(Second Call)

<http://www.euro-online.org/display.php?page=edda1&>

The EDDA (EURO Doctoral Dissertation Award) is a EURO instrument consisting in a prize that is awarded at each EURO-K conference. The purpose of the prize is to distinguish an outstanding PhD thesis in Operational Research defended in the countries having an OR society that is member of EURO. It will be awarded for the fourth time at the closing session of the EURO 2009 conference (Bonn, July 5-8, 2009).

All the information can be found in EUROPT Newsletter N.12:

<http://www.iam.metu.edu.tr/EUROPT/Newsletter12-EUROPT.pdf>

## Books and Special Issues

- Optimization Special Issue: *Continuous Optimization in Finance Dedicated to Prof. Dr. Hayri Körezlioğlu (1930-2006)*

**Editorial.** Optimization publishes a small special issue on Continuous Optimization in Finance, a topic that is also one of the new research areas which in these years EURO Working Group on Continuous Optimization is strongly supporting. Indeed, continuous optimization has become a key technology in the entire financial sector which, reversely, poses new problems and research projects to optimization.

The special issue is concentrating on topics that are equally important in both financial mathematics and optimization theory. It (i) provides an overview of, and (ii) presents some important recent developments in continuous optimization regarding the analysis and prediction of financial processes focusing on theory, methodology, and applications.

**The topics of the special issue include:**

- (a) Financial Risk Management with Continuous Optimization,
- (b) Portfolio Optimization,
- (c) Regression Problems in Finance, and
- (d) Stochastic Optimization and Control in Finance.

**The guest editor:** Prof. Dr. Gerhard-Wilhelm Weber, Institute of Applied Mathematics Middle East Technical University, 06531 Ankara, Turkey, e-mail: [gweber@metu.edu.tr](mailto:gweber@metu.edu.tr)

*When the first submissions to this special issue were made, Prof. Dr. Hayri Körezlioğlu passed way. He was the founder of the first Department of Financial Mathematics in Turkey; it is part of Institute of Applied Mathematics of Middle East Technical University in Ankara. Professor Körezlioğlu supported this special issue from the early days of its pre-consideration, and numerous authors and referees did their creative and responsible work in his commemoration.*

- MMOR Special Issue dedicated to the EURO Summer Institute ESI XXIV: *Optimization Challenges in Engineering: Methods, Software, and Applications*

*More information can be found in EUROPT Newsletter N.12:*

<http://www.iam.metu.edu.tr/EUROPT/Newsletter12-EUROPT.pdf>

- Special issue of Optimization Methods and Software

Part I of the special issue of Optimization Methods and Software is composed of carefully peer-reviewed papers presented at the "Joint EUROPT-OMS Conference: 2nd Conference on Optimization Methods Software and 6th EUROPT Workshop Advances in Continuous Optimization". Part II will appear next year.

*More information can be found in EUROPT Newsletter N.12:*

<http://www.iam.metu.edu.tr/EUROPT/Newsletter12-EUROPT.pdf>

## Special offers

The discounted subscription rate continue to be available to **individual members of the Continuous Optimization Working Group of EURO** in 2009 on the following Taylor & Francis journal:

*Optimization Methods and Software*: [www.informaworld.com/OMS](http://www.informaworld.com/OMS)

**Publishing Editor, Applied Science Journals Taylor & Francis**: Zoe Sternberg, Email: [zoe.sternberg@tandf.co.uk](mailto:zoe.sternberg@tandf.co.uk)

4 Park Square, Milton Park, Abingdon, OX14 4RN, UK

Tel: +44 207 017 4506; Fax: +44 207 017 6714

[www.informaworld.com/journals](http://www.informaworld.com/journals)

## Problems and Teaching Activities

*The material of this section is proposed by professor Sven-Ake Gustafson, actually Professor emeritus in Applied Mathematics, University of Stavanger, Norway. He is a known specialist in theory and methods of Linear, Nonlinear and Semi-Infinite, his research interests lying also in Numerical Analysis, Global Optimization, Optimal Design, Numerical Approximation, Functional Analysis and applications. He is the author of about 100 of high-level scientific publications including several books and monographs, and of a number of computer codes for numerical optimization and applications. Prof. Sven-Ake Gustafson has participated in numerous scientific events, realized a lot of scientific visits and gave a number of lectures and courses. The results of his investigation were presented in different international conferences and seminars.*

**"A short introduction to computational linear semi-infinite programming"**  
by Sven-Åke Gustafson, University of Stavanger, Norway

E-mail: [sven4014@yahoo.no](mailto:sven4014@yahoo.no)

**Basic definitions** Let  $S \subset R^k$  ( $k < \infty$ ) be a compact set,  $a_1, a_2, \dots, a_n$  and  $b$  be continuous functions defined on  $S$ ,  $c \in R^n$  a given vector. Then we introduce the optimisation problems  $P_m$  and  $P_M$  as follows:

$P_m(a, b, c, S)$ :

Minimise  $c^T y$ , when  $y$  varies over  $R^n$  subject to the constraints

$$a(s)^T y \geq b(s), s \in S.$$

$P_M(a, b, c, S)$ :

Maximise  $c^T y$ , when  $y$  varies over  $R^n$  subject to the constraints

$$a(s)^T y \leq b(s), s \in S.$$

We also introduce:  $P_2(a, b, S)$ :

Minimise  $y_0 \in R$  when  $y$  varies over  $R^n$  subject to the constraints

$$|a(s)^T y - b(s)| \leq y_0, s \in S.$$

The first two problems  $P_m(a, b, c, S)$  and  $P_M(a, b, c, S)$  are examples of linear semi-infinite programs, since they call for the minimisation and maximisation of the linear form  $c^T y$  subject to one condition for each point  $s \in S$ , which may be an infinite set, e.g. an interval.

The problem  $P_2(a, b, S)$  is equivalent to the task:

Minimise  $y_0 \in R$ , when  $y$  varies over  $R^n$  subject to the constraints

$$a(s)^T y + y_0 \geq b(s), s \in S,$$

$$-a(s)^T y + y_0 \geq -b(s), s \in S.$$

We note that  $P_m(a, b, c, S)$  is the task to approximate the function  $b$  from the above by a linear combination  $a^T y$  which is such that the linear expression  $c^T y$  is minimised. The goal of the research project CLSIP (Computational Linear Semi-Infinite Programming) is to develop computational schemes for the efficient treatment of the three problems introduced above. The following example illustrates some of the difficulties:

$P_m$ :

Minimise  $y \in R$

when

$$y \geq b(s), s \in S.$$

The optimal solution is

$$y = \sup_{s \in S} b(s),$$

provided  $b$  is bounded on  $S$ . To find the optimal value of  $y$  is a global optimisation problem, and as known, one needs to introduce assumptions on the function  $b$  and the set  $S$  in order to construct an efficient procedure for determining an optimal  $y$ .

### Discretisation.

A general approach to the numerical treatment of the problem  $P_m(a, b, c, S)$  is to approximate it with a task, that can be solved by a finite number of arithmetic operations and logical choices. We note that these can only be carried out with a finite precision which depends on the computer and operating system used. Thus one needs to consider the influence of computational errors on the calculated result.

One common approach is to replace the set  $S$  with a finite subset  $T \subset S$  and hence approximate  $P_m(a, b, c, S)$  with a linear program. Provided that the functions  $a, b$  meet certain regularity constraints, such as being continuously differentiable on  $S$ , the discretisation error may be expressed as perturbations in the data  $a, b$ . In particular, if  $S$  may be represented as a real interval, whose endpoints are contained in the subset  $T$ , then the discretisation error is equivalent to the error caused by approximating  $a, b$  by the result of interpolating linearly at the points of  $T$ . We note also, that  $S$  contains only a finite set of distinct numbers which may be represented exactly in the computer, and hence  $P_m(a, b, c, S)$  is represented in the computer as a linear program with a finite, albeit very large number of constraints. This calls for introducing regularity conditions on  $a, b$  to guarantee that the calculated solution of  $P_m(a, b, c, S)$  is indeed a good approximation for the solution of the given LSIP. It is of interest to study other kinds of discretisation, e.g. using piecewise cubic interpolation or approximating  $a, b$  by functions with known properties, e.g. polynomials.

## Semi-infinite programming in numerical analysis

1. **Approximation with polynomials in the maximum norm.** Algorithms for the classical problem of approximating a function over an interval  $S$  by polynomials in the maximum norm are attributed to Remez. These algorithms generate a sequence of vectors  $y^{(r)}$  and in order to perform an iteration step one needs to solve the global minimisation problem:  
Maximise

$$|a(s)^T y^{(r)} - b(s)|, s \in S.$$

Hence a difficulty is to keep track of the local minima.

2. **One-sided approximation.** There is a relation between generalised Gauss quadrature rules and one-sided approximation problems when the index-set  $S$  is a real interval, since such rules are the solutions of the duals of the one-sided problems introduced above. There are well-known algorithms for determining the abscissas and weights of these rules and using these rules one may solve the one-sided problems analytically, provided the  $n$ th derivative of  $b$  does not change sign in the interval  $S$ . This seemingly strong condition is met e.g. in problems occurring in power series summation.
3. **Other applications.** We mention here only the treatment of integral equations originating from problems in the petroleum industry and the analysis of environmental problems, like the control of air and water pollution. Several further applications are found in [3].

## References

- [1] K. Glashoff and S.-Å. Gustafson, Linear Optimization and Approximation, Springer-Verlag, New York, 1983.
- [2] M. A. Goberna and M. A. López, Linear Semi-Infinite Optimization, John Wiley, New York, 1997.
- [3] R. Reemtsen and Jan-J. Rückmann (Eds) Semi-Infinite Programming, Kluwer, Boston, 1998

## Editor's personal comments

Dear members of EUROPT. I am very thankful to all the colleagues who collaborated for the edition of this new issue of our Newsletter, sending information and announcements of many scientific events. I am also grateful to Prof. Sven-Ake Gustafson for his precious collaboration in the above novel section "Problem and Teaching Activities" with a *short introduction to computational linear semi-infinite programming*. This EUROPT Newsletter does not include yet the section "Calls for Collaboration Research". So far we have not received any proposal for research activities, joint projects, research visits or working meetings. We encourage very much that you send this type of announcements or project advertisements describing scientific goals, challenges and open problems.

On this so special occasion, I wish to all of you a Merry Christmas and a successful New Year:

$$7 \times 7 \times 7 \times 7 - 7 \times 7 \times 7 - 7 \times 7.$$

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

**EUROPT Newsletter**

**Editorial Board:** Domingos M Cardoso, Tatiana Tchemisova

**Co-workers:** Gerhard-Wilhelm Weber, Basak Akteke Ozturk