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EUROPEAN JOURNAL OF
OPERATIONAL RESEARCH

**A COLLECTION OF 30 INFLUENTIAL ARTICLES
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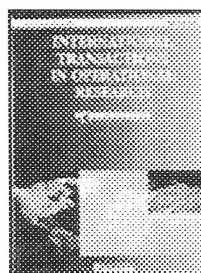# EURO Newsletter #4 (February 15, 2006)
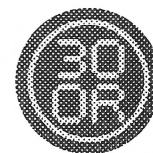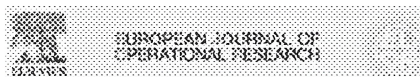
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Column One: O.R., between war and peace

by Giorgio Gallo

The role that Operations Research has played and still plays in the military is well known. In fact, it is with the military that Operations Research was born, in the years immediately preceding World War II. Today, although most of the applications of Operations Research are of civil nature, you can hardly find a major O.R. Conference without one or more sessions dedicated to military applications. Modern highly technological warfare requires sophisticate O.R. tools; think of the complex logistics which lay behind the huge troops and weaponry deployments needed for the two Gulf wars.

So, although it may be source of concern and discomfort to some of us operations researchers, it is a fact that O.R. is an essential ingredient in modern wars. But, can it also be of use in making peace? Can it help us to avoid wars? Well, luckily enough, the answer is yes, although research in the area is still very limited. That is not strange considering the large amount of funds available to defence research in contrast with the meagre ones at the disposal of peace research.

I am not talking here of the fact that also peacekeeping operations, involving troops and material, have major logistics components, nor I am talking of the kind of Operations Research which can be used in planning and implementing Humanitarian emergency interventions. I want to focus instead on topics such as Conflict Analysis and Conflict Prevention, an interesting research area in which, in collaboration with political and social scientists, operations researchers too may contribute, bringing their experience and their tools.

Can mathematical models help us to gain better insights into the nature and the dynamics of a conflict? The British mathematician Lewis Fry Richardson (1881 - 1953) thought it was possible when, after World War I, he tried to analyze war using differential equations. Considering the armament of two nations, Richardson posited an idealized system of equations whereby the rate of a nation's armament build-up is directly proportional to the amount of arms its rival has and also to the grievances felt toward the rival, and negatively proportional to the amount of arms it already has itself. Although rather simple, his model is not without merit, and highlights the mechanism through which the military build up of a country, because of the presence of reinforcing feedback loops, instead of assuring security and peace, leads to a situation of less security for all. Although he very probably did not even know the name, Richardson can be considered an operations researcher ante litteram. He used models as a means of learning, to provide insights into the real world and hence as a decision support tool: his hope was that his findings could help decision makers to take the right decision and so to avoid war. This is the direction of the short paper he published in Nature, in 1935, warning that unilateral disarmament imposed on Germany after World War I, combined with the winner countries' high military expenditures, would push Germany to rearmament, so leading to a dangerous instability.
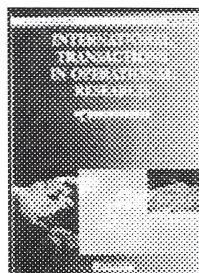
War is a very complex phenomenon and it results from the interaction of a huge number of factors. As for most complex systems, there is no hope of being able to build models that fully describe and explain its behaviour. However there is room for models which may cast light on some specific portions of this complex system, allowing us to grasp some aspects of its behaviour, so providing help in taking decisions, and providing a meaningful appreciation of the foreseeable outcome of such decisions. This is what O.R. most often does when facing problems arising in large organizations or in complex real life systems.

Apart from the analysis of conflicts to gain insights into their root causes, a particular problem which O.R. can help to solve is that of anticipating the explosion of violent conflicts before they occur in order to make possible the planning and implementation of appropriate conflict prevention and peace building measures. We can see this problem from two interrelated but different points of view, which can be identified by the following two questions. Knowing the status of the internal conditions of two states and of their relations, can we infer something about the likelihood of the outbreak of an Interstate Militarized Dispute (IMD) between them? Given a set of historical data relative to a geographical area characterized by a conflict of some kind (not necessarily o violent one), can we say something about the most likely paths that the conflict will follow?

The first problem is a typical diagnosis problem which can be solved by some of the classical optimization tools that have been developed in O.R., (Linear Programming, Boolean Optimization, ...). There is, of course, the need for large sets of data, and for the right kind of data. The choice of the type of data to collect is crucial and needs to be based on some sound theory of conflict; which is why, in this kind of work, a strict collaboration with political scientists is essential. Once the data are available, and a training set has been chosen, one can find a function (or a set of functions) which allows us to separate past cases of situations in which a conflict has happened from those in which conflicts have not happened. Such a function can be used to spot the cases in which conflict are likely to happen in today's international arena. Of course things are not so simple. For example an interesting problem is how to put in the picture not only the snapshot of a situation, that is, the data representing the state of the relations between two countries in a given point in time, but also its dynamics. A particular value of a given variable may have a completely different meaning depending on whether it is part of an increasing pattern of values or of a decreasing one.

In fact, the conflict in itself is something dynamic, which unfolds following a sequence of phases. Some sequences of conflict phases constitute patterns which are typical to broad classes of conflicts. The capability of discovering such patterns and of detecting the transitions from one phase to another in specific situations is crucial to any early warning method. Here classical mathematical methods such as Markov chains analysis and O.R. optimization tools such as clustering algorithms may be applied.

On the one hand, in fact, the conflict phases can be seen as states in a Markov model. For each pair of states a transition probability can be determined, so that the unfolding of a conflict can be analyzed as if it were a Markov chain. The problem here is that, unlike more standard Markovian models, the states are not univocally determined. What we have is a set of variables with their observed values; from these values we have to infer the underlying state (conflict phase). These types of models are called Hidden Markov Chains. Since the state paths are hidden, we cannot find the most likely model parameters (parameters estimation) analytically. Training algorithms can be used in order to find the model that assigns the training data the highest likelihood.

On the other hand, the problem of analyzing a conflict can be viewed as one of pattern recognition. Analyzing the stream of historical data representing a certain geographical area where a conflict is present, one can try to partition it

into blocks of contiguous data which share common characteristics; each of such blocks corresponds to a phase in the conflict. This partition into homogeneous blocks can be obtained by clustering algorithms. Each item in the data set is a vector in an n dimensional space and k-means type algorithms, or, better, multicriteria clustering algorithms, can be used. Again the time factor adds some difficulty to the problem: in fact we would like to have clusters as contiguous as possible over time.

Without the claiming to have given an exhaustive review of all the possible ways O.R. methods can be used in the peace studies area, I hope to have been convincing in my claim that we, as Operations Researchers, can play a relevant role in this interesting field.

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Posted by hwolkowi on February 23, 2006

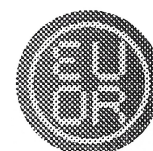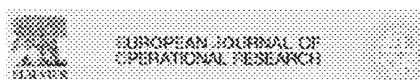The nobel prize in economics this year (game theory) involved using mathematics to analyze conflicts/wars, see e.g. http://nobelprize.org/economics/laureates/2005/aumann-lecture.html

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Report: EURO SUMMER INSTITUTE XXII on Optimization and Data Mining

by Prof. Dr. Bülent Karasözen & Prof. Dr. Gerhard-Wilhelm Weber

This is the final report of XXII EURO Summer Institute which took place at Middle East Technical University (METU) in Ankara, Turkey, from July 9-25, 2004, on the subject "Optimization and Data Mining". ESI XXII has been sponsored by:
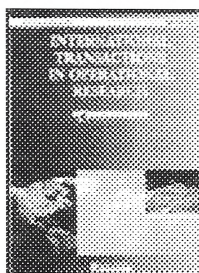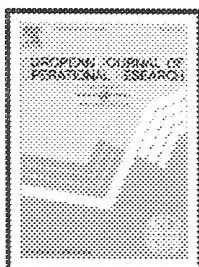
- Association of European Operational Research Societies (EURO),
- Turkish Scientific and Technological Research Council (TUBITAK)

  And supported by:

- Institute of Applied Mathematics (IAM), METU
- Operational Research Society of Turkey (ORST)

The idea of ESI XXII was born and developed during EURO/INFORMS Joint International Meeting (Istanbul, July 6-10, 2003) and, together with that conference, ESI XXII has become a key events in the course of European collaboration in the field of Operations Research (OR), supported and surrounded by Turkish hospitality, rich old culture and enthusiasm of its young scientific generation. Herewith, we tried to justify the great confidence and sympathy which have been given to us by EURO, by the OR societies.

The scientific atmosphere and challenge which could be felt and celebrated by our ESI XXII community during the 2-3 weeks in Ankara, based on the combination of its two parts, of two scientific research fields and traditions within of OR and EURO:

- data mining, being widely accepted and appreciated today as a key application field in management sciences, natural sciences and engineering,
- optimization, being a modern key technology prepared and offered by mathematics and related sciences.

"The computer revolution has paved the way to a search for techniques capable of dealing with the huge amount of data information around us in all branches of sciences, bringing new theoretical and computational challenges to exciting research areas ranging from web page clustering, to computer vision, financial mathematics and bioinformatics, etc., to mention just a few. The perceptron algorithm, support vector machines, margin classifiers, k-means clustering, EM-algorithm, are just few examples of the terminologies we often encounter in classification, clustering and machine learning problems. Optimization algorithms and techniques are often at the heart of such methodologies, and a variety of other properties leading to inter-pretation and computation of solutions relies on optimization techniques as well. The scientific aim of this summer institute consisted of seeking solutions to challenging data mining problems within the use and development of advanced / modern mathematical

optimization and statistics tools. The special structures often encountered in data mining systems also provide motivation for further investigations on new optimization methods and algorithms capable of handling very large scale data, and hence this summer meeting will advance both areas."

As Prof. Dr. Jakob Krarup (University of Copenhagen, Denmark) in his lecture during the ESI opening pointed out, our ESI XXII in Ankara, on the Anatolian part of Turkey, has the first EURO Summer Institute outside of Europe which implies a bridge function. The news about ESI XXII spread into all over Turkey; many scientists in the field were attracted and made a short visit of ESI 2004. Herewith, our summer institute in Turkey gave a strong impulse of science and friendship to Europe and the world. Furthermore, ESI XXII is embedded into a line of scientific events organized by EURO Working Group on Continuous Optimization (EUROPT) and EURO in these years 2003-2005, taking place in the South East and East of Europe, inviting and supporting the colleagues and youth there, and always having the European and OR perspective of well understanding, participation and collaboration in mind.

Organization

ESI XXII has been governed by two structures: the Organizing Committee being in the charge of logistics and the practical running of ESI XXII and various scientific decisions, and Scientific (Programme) Committee aimed at constituting the entire scientific direction and framework, to give advice on invitation of ESI teachers and final deciding about the ESI students' participation.

These two councils of colleagues were:

Organising Committee:

- Bülent Karasözen, METU (Ankara, Turkey), Chairman of ESI 2004
- Mirjam Dür, TU Darmstadt (Darmstadt, Germany)
- Tibor Illes, Eötvös Lorand University of Sciences (Budapest, Hungary)
- Sinan Kayaligil, METU (Ankara, Turkey)
- Stefan W. Pickl, University of Cologne (Cologne, Germany)
- Mustafa Pınar, Bilkent University (Ankara, Turkey)
- Leonidas Sakalauskas, Institute of Mathematics and Informatics (Vilnius, Lithuania)
- Gerhard-Wilhelm Weber, METU (Ankara, Turkey), Co-Chairman of ESI 2004.

Scientific Programme Committee:

- Aydın Aytuna, METU (Ankara, Turkey)
- Miguel Goberna, University of Alicante (Alicante, Spain)
- Refik Güllü, METU (Ankara, Turkey)
- Florian Jarre, University of Düsseldorf (Düsseldorf, Germany)
- Tamas Terlaky, McMaster University (Hamilton, Canada)
- Hayri Körezlioglu, METU (Ankara, Turkey)
- Katya Scheinberg, IBM (New York, USA)
- Marc Teboulle, Tel-Aviv University (Tel Aviv, Israel), Chairman
- Theodore Trafalis, University of Oklahoma (Norman, USA).

Before ESI 2004

The project idea of our ESI 2004 arose during EURO/IFORS Joint International Meeting (Istanbul, July 6-10, 2003). In those days, having just finished EUROPT Workshop on Advances in Continuous Optimization (Istanbul, July 4-5, 2003) with its likewise exciting atmosphere and dynamics guaranteed, last but not least, by the enthusiasm of young Turkish participants, some active members of EUROPT and also EURO Working Group on Complex Societal Problems, especially, Dr. Dorien De-Tombe, became in favour, active in supporting our ESI application. Despite the fact, that the deadline for ESI

submission had passed already, doors opened and we were still allowed to prepare and to submit our application. The authors are very grateful to Prof. Dr. Zilla Sinuany-Stern and to the other members of EURO Executive Council. In the following weeks, we prepared our application for ESI XXII in 2004 with a lot of energy and care. It became a common project of EUROPT, ORST (Operational Research Society of Turkey) and IAM (Institute of Applied Mathematics) of METU. Our application was accepted during the meeting of EURO Executive Meeting in 2003.

We proceeded with our preparations and announcements of ESI XXII in Ankara, Turkey. In autumn 2003, we send an invitation and, later on, in April 2004, a reminding invitation to our ESI 2004 via EURO, where ESI 2004 became announced by e-mails to national OR societies, to IFORS and related continental OR societies, and by registration of ESI 2004 in the Calendar of the Association of European Operational Research Societies web site. Furthermore, advertising and information about our ESI was since the end of since April 2004 done by the EURO Bulletin. Finally, we gave detailed information and made further announcements about ESI 2004 by ESI homepage http://www.iam.metu.edu.tr/esi04/index.html, by EUROPT working group homepage under http://www.iam.metu.edu.tr/EUROPT/ and by the EUROPT link at http://www.euro-online.org/display.php?page=working_groups& on EURO home-page. By all these treatments, by many special e-mails and a number of mailing lists used, many interested people got aware and attracted by our initiative of ESI XXII in Turkey project.

By the end of April 2004, 26 applications by young people reached us via national OR societies, via IFORS, ALIO, and also via professors from the countries Russia and Ukraine, which are not in EURO, or, by exception, via direct e-mails sent to us if the deadline of application via the national OR society had passed or no local contact person was known. Among these submitted applications, there has been one student sent to us via ALIO, namely, Kelly Cristina Poldi (Brasil) and two students sent to us via IFORS, namely, Fernando Alexis Crespo Romero (Chile) and Sethuraman J (India). Based on the recommendation of their societies and teachers, we from ESI XXII Organizing and Scientific Committee finally accepted all our applicants and their requested draft papers.

The tentative ESI programme became published in June 2004, the final program became completed at the beginning of July 2004 and distributed to all participants of our ESI.

The total number of young participants turned out to **23**, and the number of invited lecturers was **9**, thus the total number of all our guests became **32**. Our ESI 2004 participants travelled to us from **20** different countries: Australia, Brazil, Chile, Denmark, France, India, Italy, Germany, Hungary, Lithuania, The Netherlands, Norway, Poland, Portugal, Russia, Spain, Switzerland, Turkey, United Kingdom and USA.

ESI 2004 Itself

In order to give to all our ESI participants the opportunity to make new scientific and social experiences, to learn and to develop their skills in the fields of optimization and data mining, to explore a country which is new for most of them, ESI XXII was organized on the wide and green campus of Middle East Technical University. The METU combines the advantages of fresh air and calmness with modern facilities and with the dynamical and vivid young atmosphere of student life.

ESI XXII took place in Exhibition Hall of University Library of METU. Teachers and young participants were accommodated in Guesthouse and Students Guest House of METU. The session program including a break at midday of three hours, the accommodation and feeding of the participants were organized in the neighbourhood of a 10 minutes walking distance.

The final programme consists of the enclosed document
http://www.iam.metu.edu.tr/esi04/esiprog.pdf. There were only a few
"last-minute changes".

All invited speakers of ESI XXII remained for 6-16 days to share common time
with our young people: at the lecture time, at the meals and social events, or
just in between. Their didactically well prepared and presented talks covered a
wide range in the fields of optimization and data mining. By us organizers,
copies of the teacher's lectures were distributed in the lecture room and will
hopefully become helpful for further reading and learning by the participants. All
the talks can be found at ESI WEB page.

At the last day of scientific program, July 23, **ESI Diplomas (certificates)** are
handed out to all our ESI students.

Among the social events and activities which have been organized, we would
like to mention:

- welcome party given by Institute of Applied Mathematics (Friday, July 9)
- trip by bus to Beypazari, a small Anatolian town on the silk road (Sunday,
  July 11)
- visit of old city of Old City of Ankara and of famous Museum of Anatolian
  Civilizations (Wednesday, July 13)
- reception by Operational Research Society of Turkey (Friday, July 16)
- trip to Cappadocia with sightseeing of spectacular nature and heritages of
  early Christianity (Saturday - Sunday, July 17-18)
- Turkish night in Cappadocia (Saturday, July 17)
- going into the mountains of METU and watching the sunset (Monday, July
  19)
- volleyball and football tournaments (Wednesday, July 21)
- ESI 2004 dinner and farewell-party (Friday, July 23).

Feedback and Conclusions

By intensive sharing of common time, we also intended to have some
continuous feedback from all participants, to hold on being sensitive about their
questions (e.g., on computers with internet access which were well provided, on
transportation or additional trips), their wishes (e.g., of dancing) and their
problems (e.g., in case of illness). Based on this continuous attention and online
exchange, we tried to serve our guests and new friends best possible.
According to the response given to us, the 23 students from Europe and all
over the word, and the 9 experienced invited ESI teachers really enjoyed our
summer institute, its scientific and its social parts and events likewise.

The young participants appreciated the high quality of invited lectures, the
handouts of their talks prepared, and they accepted their offer of scientific
advice and personal exchange with pleasure. From our invited speakers we
heard how much they are in favour of the young people's well behaviour and
scientific level. All of the participants seemed to be satisfied with the balance
between organized time and free time. The personal exchange we had, the
collaboration and friendship founded and the e-mails we later on received show
us that your guests enjoyed our ESI in Turkey very much.

We have invited the ESI participants to write us more about their further
impressions about our Summer Institute and also by writing short reports and
stories in the EURO initiative **Branding OR** of EURO. Some ESI students will
prepare short reports or stories.

There have been two more and special ways how the participants' satisfaction,
closeness and identification with ESI XXII and its community manifested itself.
On the one hand, many participants became member of our EURO working
group **EUROPT**. Today we may state that about 50-60% of our ESI participants
will collaborate within of EUROPT in future.

Based on a friendly and warm atmosphere, the entire group became some kind

of a family, and various rich plans for future works and meetings became prepared.

Finally, an **EJOR special issue** Optimization in Data Mining has been announced during ESI XXII. The three guest editors will be Prof. Dr. Alexander Rubinov (University of Ballarat, Australia) and we, chairman and co-chairman. Corresponding editor-in-chief will be Prof. Dr. Jacques Teghem (Université Libre de Bruxelles, Belgium). This special issue should be published at the end of 2005. Please find closer information about our call for papers and about EJOR's instructions for authors in <u>call for papers</u> and in <u>EJOR's instructions</u>, respectively.

Once again we would like to express our gratitude to all people and organizations, especially EURO, who by their hard work and great sympathy, by strong devotion, confidence and financial support helped ESI XXII in Turkey to become a great success and service for scientific progress, a better understanding and heartfelt friendship in Europe and the world.

With best wishes and warm regards,

Yours sincerely

Prof. Dr. Bülent Karasözen, ESI XXII Chairman, Institute of Applied Mathematics, Department of Mathematics, Middle East Technical University, 06531 Ankara, Turkey

Prof. Dr. Gerhard-Wilhelm Weber, ESI XXII Co-Chairman, Vice-Coordinator of EUROPT, Institute of Applied Mathematics, Middle East Technical University, 06531 Ankara, Turkey

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Posted by fcrespo on February 23, 2006

As Feedback to EURO:

It's necessary to send my thanks to all people what they worked with us, in the EURO summer Institute: the students of Gerhard and Mr. Bulent, the turkey professors that they transformed our stay in an unforgettable experience: Mr. Erol Sayin and others, and the workers of METU, they didn't speak english but they made efforts to understand us!

It was an experience that it marked our lifes!
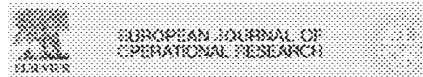
Bye,
Fernando A. Crespo R.

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by Philippe Toint

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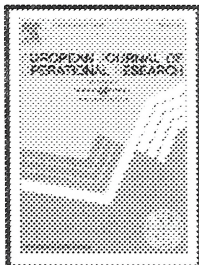## In this issue

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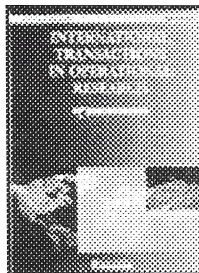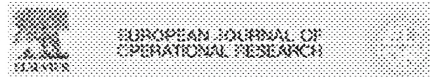
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Members: Gesellschaft für Operations Research - GOR

by Gerhard Wäscher, President of GOR

Institutional Operations Research in Germany can look back at a remarkably long history, which started with the Arbeitskreis Operations Research (AKOR, founded in 1956) and the Deutsche Gesellschaft für Unternehmensforschung (DGU, 1961). In 1972 AKOR and DGU were merged to form the Deutsche Gesellschaft für Operations Research (DGOR). From 1979 onwards, when the Gesellschaft für Mathematik, Ökonometrie und Operations Research (GMÖOR) was established, two societies for the promotion of Operations Research in Germany existed in parallel, of which DGOR was considered to be more practically / management-oriented, while GMÖOR represented the more theoretically / mathematically oriented branch of Operations Research. In 1998, GMÖOR and DGOR decided to join forces in order to establish a more powerful and influential, unified society, the Gesellschaft für Operations Research (GOR).
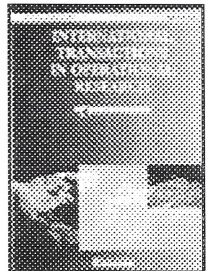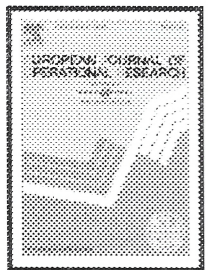
Today, GOR has a total **membership** of about 1,200, individuals and institutions, originating from academia, industry and administration. The current membership fee is 80 Euros for personal members and 300 Euros (minimum) for institutional members, providing a total budget of some 100.000 Euros per year. Contact among members is maintained and information is distributed between them by means of a webpage (www.gor-online.de), a membership magazine (OR News, contents and presentation similar to OR/MS Today, published three times a year), and an electronic newsletter (distributed when required). These services are included in the membership fee and provided free of additional charges.

GOR publishes two scientific **journals**, OR Spectrum (ORS) and Mathematical Methods of Operations Research (MMOR). Both journals are published in English, and are ranked among the top OR journals internationally. Members of GOR receive one of these journals for free, a second one can be subscribed at a significantly reduced rate (55 Euros at present). Furthermore, GOR has recently launched a **book series** (GOR Publications, published by Springer Verlag) which is meant to demonstrate the high standards of contributions from its members to Operations Research / Management Science and to make them more easily available, in particular to researchers and practitioners from outside the German-speaking countries.

Among the meetings which are organized regularly by GOR, the **annual conference series** OR20xx without doubt represents the most important one. OR20xx is an international scientific conference (conference languages are German and English, but the large majority of papers is presented in English) which constantly attracts between 400 and 600 participants, not only from Germany but from all over the world. It is usually held during the first week of September and provides a forum for the presentation of the latest developments in the field, both from a scientific and a practical point of view. The conference program is complemented by a significant number of tutorials, plenary and semi-plenary talks in which internationally renowned experts give

an overview of specific areas of current interest. A selection of papers from each conference is published in the book series "Operations Research Proceedings 20xx" (also by Springer Verlag). Conference fees are currently about 175 Euros for GOR members, and 250 Euros for non-members. Students only pay a symbolic fee. The conference forthcoming in 2006 will be held at Karlsruhe, September 6 – 8; "Basel II" has been chosen as the conference theme. For further details check the conference webpage www.or2006.de.

At least once a year, usually one day ahead of its annual conference, GOR offers a one-day **tutorial** on a topic, which is considered as vital for the future development of Operations Research in Germany. The tutorial aims at introducing interested individuals to a particular topic of OR, but is also meant to establish closer contacts between practitioners and researchers in the respective area. It is usually presented by an internationally renowned expert in the field. Recently successful topics include Revenue Management (Presenter: Kalyan Talluri, University Pompeu Fabra, Barcelona), System Dynamics (John Sterman, MIT, Cambridge, Mass.), and Business Intelligence (David Hand, Imperial College, London).

Working groups represent another important asset of GOR. They particularly serve the purpose of establishing and strengthening the contacts between industry, administration, and academia. GOR currently runs 13 of such groups, among which are those in Revenue Management and Dynamic Pricing, Supply Chain Management, Health Care Management, Environmental Management, Project Management and Scheduling, just to mention a few. Allocated to each of the working groups is a small financial budget, from which meetings and specialised conferences are organised. Each working group is required to meet at least once a year, ideally at an industrial enterprise active in the specific area. The schedule of the forthcoming working group meetings can be obtained from the GOR webpage (www.gor-online.de).

GOR also presents several **awards**, of which the "Wissenschaftspreis" (Scientific Award, currently sponsored by INFORM GmbH, Aachen) is the most prestigious one. Every second year it is given to a person "with a German background" for outstanding scientific lifetime achievements. The laureates so far include Martin Grötschel, Thomas Liebling, Bernhard Fleischmann, and Rolf Möhring. Very well established is GOR's Dissertation Award (sponsored by SAP, Walldorf) which is given every year to up to five PhD students for excellent doctoral dissertations. Likewise, up to three graduate students get awarded a "Diplomarbeitspreis" for their diploma or master theses. In 2006, for the first time also a "Unternehmenspreis" will be presented to a company for outstanding contributions to the promotion of OR in practice. It is planned that in future the award is handed out every second year, alternating with the Wissenschaftspreis.

GOR also maintains close **international relations** with other scientific and professional organizations, not only within EURO and IFORS, but also on a bilateral level. Partnership contracts, which, e.g., have been signed in the past with the Operations Research Societies of Austria, Switzerland, Slovenia, the Netherlands, and Hungary, give members of these societies access to GOR's services under conditions identical to those granted by GOR to its own members (in particular at the same fees) and vice versa. Traditionally, the annual conferences of the Austrian, Swiss, and German OR Societies are organized as a joint meeting every fourth year (Zürich 1998, Klagenfurt 2002, Karlsruhe 2006). On a less regular basis, this is also done in cooperation with NGB, the OR Society of the Netherlands (Tilburg 2004).

Despite its wide range of activities, GOR is characterised by an extremely "lean", decentralized organisation. GOR only maintains a small office which is run by a secretary on a part-time basis. All the above-mentioned and other services could not be provided without the outstanding engagement of its members.

Bochum, January 2006

Contact:

Prof. Dr. Gerhard Wäscher
President of GOR
Otto-von-Guericke-University Magdeburg
- Management Science -
P.O.Box 4120
D-39016 Magdeburg, Germany
Phone: +49 391 67-18225
Fax: + 49 391 67-18223
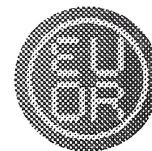eMail: gerhard.waescher@ww.uni-magdeburg.de

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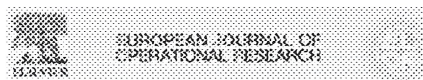
Comments and discussion

Post a reaction

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Comments or suggestions?
Contact us at newsletter@euro-online.org.

EURO
The Association of European
Operational Research Societies

A COLLECTION OF 30 INFLUENTIAL ARTICLES
PUBLISHED IN EJOR CELEBRATING THE 30TH
ANNIVERSARY OF EURO

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EURO Newsletter #4 (February 15, 2006)

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CFP: EJOR Special Issue on OR for Better Management of Sustainable Development
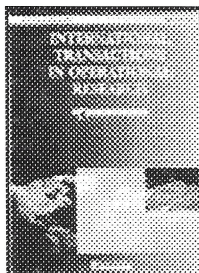
The European Journal of Operational Research will publish a feature issue on OR for Better Management of Sustainable Developement, which is also the special conference theme of EURO XXI 2006 in Iceland (http://www.euro2006.org). Development is a topic which is one of the central concerns among the family of peoples on earth, particularly within the Third World. They indeed look for continuous improvement in their living and working conditions, with enough to eat in a healthy environment, provided with good education and affording chances for everyone to master their own lives whilst contributing to the happiness of the others. However, there is a need, as the UN says, to look towards the very long term since the well-being of future generations can only be ensured if that development is sustainable. By its conference theme, EURO XXI 2006 aims to demonstrate how OR can improve the management of this important topic. A number of semi-plenary speakers will develop our theme in depth, and many streams are directly related to it. This special issue will aim to demonstrate the state–of the art, challenges in the topic area and ways for improving its management, whilst promoting future research and collaboration among the countries of EURO and in the world as a whole. To this end we welcome high-quality paper submission from OR practitioners and researchers related to the development theme. Contributions of a more theoretical nature are also welcome provided their contribution to the special theme is demonstrated.

Guest Editors: Prof. Dr. Ulrike Leopold-Wildburger, Prof. Dr. Gerhard-Wilhelm Weber and Prof. Dr. Martin Zachariasen.

Corresponding Editor-in-Chief: Prof. Dr. Roman Słowiński (Poznań University of Technology, Poland; roman.slowinski@cs.put.poznan.pl).

Important Dates:

- submission deadline of full papers: November 1st, 2006 (early submission encouraged),
- notification of acceptance: June 15, 2007,

- completion: August 15, 2007.

Submission Details: The full paper should not exceed 25 double-space pages of A4, including illustrations and tables. The front page of the manuscript has to show its title, and the names and affiliations of all authors. It should also provide the contact information of the correspondence author, including the postal address and e-mail address. The submitted papers must not have been previously published or be currently under consideration for publication elsewhere. The format of manuscripts for EJOR can be found on the web page of Elsevier Science, the publisher of the journal; for "Guide of Authors" please visit http://authors.elsevier.com/. All papers submitted for publication will be carefully refereed. You are sincerely invited to electronically submit your PS or PDF document to one of the following guest authors:

Prof. Dr. Ulrike Leopold-Wildburger
Department of Statistics and OR, Karl-Franzens University of Graz, Universitätsstraße 15, 8010 Graz, Austria, E-mail: ulrike.leopold@uni-graz.at

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

Prof. Dr. Martin Zachariasen
Department of Computer Science (DIKU), University of Copenhagen Universitetsparken 1, 2100 Copenhagen, Denmark, E-mail: martinz@diku.dk

In this issue

JOURNAL OF MATHEMATICS AND MUSIC

Preliminary Call for Contributions

We welcome the submission of research papers that involve mathematical or computational approaches in the study of music. The "Journal of Mathematics and Music" aims to advance the use of mathematical modelling and computation in music theory. It focuses on mathematical approaches to musical structures and processes, including investigations into theoretical or compositional issues, as well as mathematically motivated analyses of musical works or performances.

The journal is published by Taylor & Francis in a hybrid form (print edition and extended electronic edition). Regularly submitted papers will appear in two issues per year. A third annual issue will include invited or submitted papers on a special topic. The official call for contributions, with detailed information about formating and reviewing procedures, will soon be available at the journal's website: http://www.tandf.co.uk/journals.

Respectfully submitted,
The Editors
Thomas Noll noll@cs.tu-berlin.de
Technische Universität, Berlin
Escola Superior de Musica de Catalunya, Barcelona
Robert Peck rpeck@lsu.edu
Louisiana State University

In this issue

APMOD 2006

Madrid, SPAIN
19-21/6/2006

Email:apmod2006@bayes.escet.urjc.es
apmod2006@iit.icai.upcomillas.es

Web: http://www.apmod.org.uk/

APMOD 2006 is the eighth in the series of successful events. APMOD91, the first in this series took place in 1991 at Brunel University (UK) and the second in Budapest (Hungary) in 1993. The third event was back at Brunel University (UK) in 1995 and the fourth in Limassol (Cyprus), in 1998. APMOD was held again at Brunel University (UK) in 2000. In 2002 took place in Varenna (Italy) and in 2004 was held again at Brunel University (UK). This series of events complements the triennial Mathematical Programming Symposia and has built up a good tradition for disseminating research results of this community. Contributions from all over the world are invited and solicited. The symposium is thus set out to attract specialists with different backgrounds such as academic researchers, industrial research workers and software developers.

APMOD conference is focused on theory and applications of operational research with emphasis in mathematical programming. The main solution algorithms will be for LP, IP, QP, SP and combinatorial optimisation. The modelling applications are taken from the most recent developments in a variety of areas: finance, health, supply chain, utility sector, etc. including streams devoted to web-based optimisation and modelling. Contributions on other operational research topics are also welcome. Related to the practical operational research, a one-day workshop prior to the start of the conference has been organised.

In this issue

Call for papers for SING2 and XVI IMGTA

Dear member of the E.U.R.O, we are pleased to invite you to submit an abstract for the SING 2 - Spain Italy Netherlands Conference on Game Theory and XVI IMGTA - Italian Meeting on Game Theory and Applications that will be held in Foggia next 14-17 June. Please consider that the deadline for abstract submitting is approaching.

You can find detailed information, abstract submission and registration form at: http://ejournals.wspc.com.sg/igtr/igtr.shtml).

Invited Speakers:

Harold W. Kuhn, Princeton University;
Peter Borm, Tilburg University;
Françoise Forges, Université Paris-Dauphine;
Steffen Jørgensen, University of Southern Denmark;
David Schmeidler, Ohio State University;
Myrna Wooders, Vannderbilt University.

Please do not hesitate to contact the organizing committee (sing2@unifg.it)for any question,
We hope to see you soon in Foggia,

Regards,
Andrea Di Liddo
Luca Grilli

In this issue

PhD and Qualifying Scholarships in Berlin (@ HU & WIAS)

Profs. C. Carstensen, B. Niethammer, J. Sprekels, A. Mielke, D. Hoemberg, B.

Kummer, L. Recke, A. Griewank and nine scientific associates have established the DFG Graduiertenkolleg 1128. All are members of the Humboldt University or the WIAS institute and belong with one exception also to the research center MATHEON which has just passed its first review.

The Graduiertenkolleg is a temporary graduate school supported by the DFG (German Science Foundation) since last year. It currently comprises 7 doctoral and 4 qualifying students, of whom the majority are non German. Starting April 1st seven more scholarships for a three year period become available. The focus of the study and research program is
Analysis, Numerics, and Optimization of Multiphase Problems
and we are looking for applicants from mathematics, physics and engineering with a keen interest and strong background in applied mathematics. For more information look at
http://multiphase.mathematik.hu-berlin.de
Please encourage suitable students to contact us by e-mail and send in a resume, preferably by the end of February.

Andreas Griewank
fon: +49-30-2093 5820
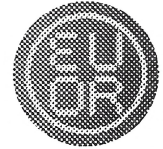sec: +49-30-2093 5833 (Jutta Kerger)
griewank@math.hu-berlin.de

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Comments or suggestions?
Contact us at newsletter@euro-online.org.

EURO
The Association of European Operational Research Societies

EUROPEAN JOURNAL OF OPERATIONAL RESEARCH

A COLLECTION OF 30 INFLUENTIAL ARTICLES PUBLISHED IN EJOR CELEBRATING THE 30TH ANNIVERSARY OF EURO

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EURO Newsletter #4 (February 15, 2006)

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- A new event in the calendar
  3rd ESICUP EURO Working Group Meeting

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