32nd CONFERENCE ON THE
MATHEMATICS OF OPERATIONS RESEARCH

and

SEMINAR ON "OPERATIONS RESARCH AND PUBLIC TRANSPORTATION"

Conference Center 'The Werelt', Lunteren, The Netherlands
January, 16 – 18, 2007

AIM and SCOPE

The aim of the conference is to promote research activities and cooperation between senior and junior researchers in the mathematics of Operations Research in the Netherlands. The program offers high quality research and applications and should appeal to both academic researchers and people from profit and non-profit organizations.

On the last day a seminar is jointly organized by the LNMB (Landelijk Netwerk Mathematische Besliskunde) and NGB (Nederlands Genootschap Besliskunde) on the subject "Operations Research and Public Transportation".

The program should give ample opportunity for informal discussions. The conference center is located in the scenic surroundings of Lunteren, in the center of the Netherlands.

During the first two days, there are five prominent invited speakers from abroad who will present two lectures in their field of research:

- Peter Glynn (Stanford University, USA): http://icme.stanford.edu/faculty/glynn/index.html
- Mor Harchol – Balter (Carnegie Mellon University, Pittsburgh, USA): http://www.cs.cmu.edu/~harchol/
- Tim Roughgarden (Stanford University, USA): http://theory.stanford.edu/~tim/
- Moshe Tennenholtz (Technion, Haifa, Israel): http://iew3.technion.ac.il/Home/Users/Moshet.phtml
- Shuzhong Zhang (The Chinese University of Hong Kong): http://www.se.cuhk.edu.hk/~zhang/

The seminar on "Operations Research and Public Transportation" is held on Thursday.
On Tuesday and Wednesday there are also some 30-minutes presentations by Ph.D. students.
Biographies of the five invited speakers and a registration form can be found in this announcement.
For more information: www.lnmb.nl/conferences/lunteren2007

Program Tuesday January 16

10.15   Registration
10.55 – 11.00   Opening
11.00 – 11.45   Tim Roughgarden: *Quantifying the Inefficiency of Equilibria in Network Games*
12.00 – 12.45   Mor Harchol - Balter: *Scheduling in Multiserver Systems (Part I)*
12.45   Lunch
14.00 – 15.30   PhD presentations (parallel)
16.00 – 16.45   Peter Glynn: *Rare-event Simulation via State-dependent Importance Sampling*
17.00 – 17.45   Moshe Tennenholtz: *Ranking Systems*
18.30   Dinner
20.30   Meeting for the members of the LNMB

Program Wednesday January 17

09.00 – 09.45   Tim Roughgarden: *The Potential Function Method*
10.00 – 10.45   Shuzhong Zhang: *Conic Optimization, Randomization, and Combinatorial Problems*
11.15 – 12.00   Mor Harchol - Balter: *Scheduling in Multiserver Systems (Part II)*
12.15 – 13.00   Moshe Tennenholtz: *Pre-Bayesian Games*
13.00   Lunch
14.30 – 15.30   PhD presentations (parallel)
16.00 – 16.45   Shuzhong Zhang: *Ambiguity, Uncertainty, and Robust Optimization*
17.00 – 17.45   Peter Glynn: *Simulation in the Presence of Shape Constraints*
18.30   Dinner
20.30   Meeting PhD students LNMB

Program Thursday January 18: Seminar OR and Public Transportation
09.30 – 10.15 Registration and Coffee
10.15 – 10.25 Welcome and introduction by the chairman
10.30 – 11.10 Leo Kroon: *A survey of OR models and techniques for the planning of Public Transportation*
11.20 – 11.50 Marieke de Koning: *Making money out of public transportation: performance measurement of bus and tram advertising*
12.00 – 12.30 Gerard Kindervater: *Revenue Management in the Airline Passenger Industry*
12.30 – 13.50 Lunch
13.50 – 14.20 Dennis Huisman: *Timetable 2007: why and how?*
14.30 – 15.00 Guido Diepen: *Planning of busses and gates at Amsterdam Airport Schiphol*
15.10 – 15.40 Ramon Lentink: *Where do train units stay when they're off duty?*
15.50 – 16.20 Michiel Odijk: *Application of OR to settle a major HRM conflict at Dutch Railways*
16.30 – 17.00 Niels van Oort: *The moment of execution: real-life monitoring and control of public transport operations in major urban areas*
17.00 – 18.00 Drinks

PhD PRESENTATIONS AND LNMB DIPLOMAS
The PhD students of the LNMB are strongly recommended to present a paper at this conference. In order to receive the LNMB diploma, a PhD student must have given such presentation at least once. For each presentation 30 minutes are available in one of the parallel sessions. For each contributed paper a senior member of the LNMB will be available to act as discussant.

The deadline for the application of a PhD presentation is **December 1**. To apply, send the following information to kallenberg@math.leidenuniv.nl: your name and the name of your supervisor, the title and an abstract of about half a page. When you give a PhD presentation, you also have to fill in the application form.
During the conference the LNMB diplomas will be presented to the PhD students who have fulfilled the requirements for this diploma (750 credit points or 25 EC and a PhD presentation). If you believe to have fulfilled these requirements, please send **before December 14**, an e-mail to kallenberg@math.leidenuniv.nl with the following information:
- your family name and full first name(s);
- date of birth (dd/mm/yy);
- place of birth (city, country);
- certificated courses with credit points;
- Lunteren conferences you have attended (you receive 30 credit point for each conference).

LOCATION
Conference Center 'De Werelt', Westhofflaan 2, Lunteren, The Netherlands, phone 0318 - 484641.
For more information, e.g. 'how to reach' see: www.congrescentrum.com

ORGANIZATION AND INFORMATION
The conference is organized by the LNMB (Landelijk Netwerk Mathematische Besliskunde), the seminar jointly with the NGB (Nederlands Genootschap Besliskunde).
For more information contact the director of the LNMB, Lodewijk Kallenberg (kallenberg@math.leidenuniv.nl; phone 071 - 5277130) or look at the site www.lnmb.nl/conferences/lunteren2007.

REGISTRATION
One can register by sending in the registration form and transferring the fee. Participants can register for the entire meeting as well as for partial arrangements. It is possible, against reduced rates, to share a room; in that case a roommate should be indicated on the registration form. PhD students of the LNMB who attend the entire meeting including the seminar are entitled to a reduction of € 50 of the fee in addition to the financial support of 50% of their traveling expenses.
The various fees and bank account can be found on the enclosed registration form. Please send this form as soon as possible, but **ultimately December 15**, to the secretary of the LNMB, mrs. W.A. Hasselton - Snijder, Mathematical Institute, Leiden University, P.O. Box 9512, 2300 RA Leiden, The Netherlands.

SPEAKERS ON JANUARY 16 AND 17

Peter Glynn (Stanford University, USA)
Peter Glynn received his PhD from Stanford (1982). He is currently Thomas Ford Professor of Engineering at Stanford University. His research interests include discrete-event simulation, computational probability, queuing, and general theory for stochastic systems. Current applications areas include performance engineering for communications networks, control algorithms for wireless networks, and computational finance. He is in the editorial board of Mathematics of Operations Research, Journal of Applied Probability and Advances in Applied Probability. Next year his book *Stochastic Simulation: Algorithms and Analysis* (with Soren Asmussen), will appear. Peter Glynn was honored with the Eugene L. Grant Award for Excellence in Undergraduate Teaching.

Mor Harchol – Balter (Carnegie Mellon University, Pittsburgh, USA)
Mor Harchol-Balter is an Associate Professor of Computer Science at Carnegie Mellon University. She received her doctorate from the University of California at Berkeley. She is a recipient of the McCandless Chair, the NSF CAREER award, the NSF Postdoctoral Fellowship in the Mathematical Sciences, multiple best paper awards, and several teaching awards, including the Herbert A. Simon Award for Teaching Excellence.
Professor Harchol-Balter is heavily involved in the ACM SIGMETRICS research community. Her work focuses on designing new scheduling/resource allocation policies for various distributed computer systems including Web servers, distributed supercomputing servers, networks of workstations, and database systems. Her work spans both queueing analysis and implementation and emphasizes integrating measured workload distributions into the problem solution.

Tim Roughgarden (Stanford University, USA)
Tim Roughgarden received his PhD from the Cornell University, Ithaca, New York (2002). His research interest is in the area of algorithms, network and combinatorial optimization, and game theory. He is the author of the book *Selfish Routing and the Price of Anarchy* (MIT Press, 2005).
His has received many awards including the Danny Lewin Best Student Paper Award (2002), the INFORM's Optimizaton Prize for Young Researchers, the Tucker Prize of the Mathematical Programming Society, both in 2003, and is NSF CAREER Award Recipient, 2005 - 2010.
Tim Roughgarden is associated editor of Operations Research Letters, ACM Transactions on Algorithms and the IEEE Journal on Selected Areas in Communication.

Moshe Tennenholtz (Technion, Haifa, Israel)
Moshe Tennenholtz is a professor with the faculty of Industrial Engineering and Management at the Technion, where he holds the Sondheimer Technion Academic Chair. During 1999-2002 he has been visiting professor at Stanford CS department. Professor Tennenholtz received his B.Sc. in Mathematics from Tel-Aviv University (1986), and his M.Sc. and Ph.D. (1987, 1991) from the Department of Applied Mathematics and Computer Science in the Weizmann Institute. His area of research lies in the interface between Artificial Intelligence and Game Theory. Among his contributions, in joint work with colleagues and students, he introduced the theories of artificial social systems, co-learning, distributed games, and non-cooperative computing, the axiomatic approach to ranking systems, as well as the study of program equilibrium and learning equilibrium. Moshe Tennenholtz is the editor-in-chief of the Journal of Artificial Intelligence Research, as well as an associate editor of Games and Economic Behavior], the international journal of autonomous agents and multi-agent systems, and an editorial board member of the AI magazine, and of the Journal of Machine Learning Research.

Shuzhong Zhang (The Chinese University of Hong Kong)
Shuzhong Zhang is a full professor at Department of Systems Engineering & Engineering Management, The Chinese University of Hong Kong. Prior to this position, he served as a faculty member at Department of Econometrics, University of Groningen (1991 – 1993), and at Econometric Institute, Erasmus University Rotterdam (1993 – 1999) where he also received his Ph.D. degree in 1991. He received the Research Prize from Erasmus University in 1999, VC's Exemplary Teaching Award from The Chinese University of Hong Kong in 2001, the SIAM Outstanding Paper Prize in 2003. He is elected Council Member-at-Large of the Mathematical Programming Society (2006 – 2009), and serves on the Editorial Board of Optimization and Engineering, SIAM Journal on Optimization, Pacific Journal on Optimization, and Operations Research. His research interests include conic optimization, robust optimization, randomization algorithms, and their applications in engineering, management, and economics.

SPEAKERS ON JANUARY 18

Leo Kroon (NS Reizigers, Utrecht; Erasmus University, Rotterdam)
Leo Kroon studied Mathematics at the Free University in Amsterdam. In 1990, he defended his Ph.D. thesis *Job Scheduling and Capacity Planning in Aircraft Maintenance* at Erasmus University Rotterdam. Since 1996, he has been a logistic consultant in the department of Logistics of NS Reizigers, the main operator of passenger trains in the Netherlands. Besides that, he is a part-time professor of Quantitative Logistics at the Rotterdam School of Management of Erasmus University Rotterdam. His main research interest is the development of decision support tools for planning and operations control of railway systems.

Marieke de Koning (Pointlogic, Rotterdam)
Marieke de Koning graduated in Econometrics in 2002, with a combined specialisation in Operations Research and Marketing. She has worked as an analytical consultant at Pointlogic since her graduation. Pointlogic is a consulting software company enabling smart decisions for its clients by delivering software based solutions. The company specializes in applying mathematical and econometric techniques in the areas of media, marketing, HRM, health care and security.

Gerard Kindervater (KLM Royal Dutch Airlines)
Gerard Kindervater has been a research assistant at CWI in Amsterdam in the 1980's. In 1988 he accepted a position as assistant professor at Erasmus University in the Department of Computer Science of the Economic Faculty. Since 1999 he works for KLM Royal Dutch Airlines in the Department of Pricing and Revenue Management. Currently he is involved in the development of a joint revenue management system for Air France and KLM.

Dennis Huisman (Erasmus University Rotterdam; NS, the Netherlands Railways)
Dennis Huisman (1978) is a part-time Assistant Professor at the Econometric Institute of the Erasmus University Rotterdam. Moreover, he works part-time as logistic consultant at NS, the Netherlands Railways. He combines these two jobs since 2004 after obtaining his Ph.D. at the Erasmus University Rotterdam. In both jobs, Dennis does research on topics as vehicle scheduling, crew scheduling and crew rostering. He has published several articles in journals as Transportation Science, European Journal of Operational Research and Journal of Scheduling. Moreover, he is one of the founders and current director of the Erasmus Center for Optimization in Public Transport, where optimization problems in public transport are studied.

Guido Diepen (Utrecht University)
Guido Diepen conducted his master's research at the The National Aerospace Laboratory (NLR). He got his master's degree on 19 December 2003 and the topic of his master's thesis was *Solving the gate assignment problem using column generation.*
He started as a PhD student at the Algorithmic Systems groups in the Department of Information and Computing Sciences of the Utrecht University in April 2004. Current research topics deal with integrating sequential scheduling problems into one big problem. Furthermore, he is investigating the gate and bus planning problems at Amsterdam Airport Schiphol, as well as the integration of these problems.

Ramon Lentink (ORTEC, Gouda)
In 1995, Ramon Lentink started his study Econometrics at the Free University of Amsterdam. In 1999, he graduated with a Master's thesis on the subject of train crew scheduling. The thesis was written at ORTEC, one of the key providers of advanced planning and scheduling software, and the developed algorithms were applied to real-life problems provided by Netherlands Railways Passengers.
From September 1999, he has been working as a consultant at ORTEC. Here, he applies Operations Research models and algorithms to problems of clients in the field of logistics. From October 2000 until February 2006, he combined his work at ORTEC with a part-time Ph.D. study at the Rotterdam School of Management of the Erasmus University Rotterdam. The subject of his Ph.D. research was the development of mathematical models and algorithms for supporting railway shunt planners. The corresponding research was carried out in close cooperation with the logistics department of Netherlands Railways Passengers. The research resulted in the Ph.D. thesis "*Algorithmic Decision Support for Shunt Planning*", which was successfully defended in February 2006. Since January 2006, Ramon is full-time employed at the Algorithmics department of ORTEC, where his current focus is shortest path problems in huge networks and vehicle routing problems.

Michiel Odijk (ORTEC, Gouda)

Michiel Odijk (1969) studied mathematics at Eindhoven Universtity of Technology (TUE) and received his PhD in 1998 from Delft University of Technology (TUD) based on his thesis Railway Timetables Generation. Part of the research was done at Railned (now ProRail) in Utrecht. At the same time he held a position as assistent professor at TUD.

In 1998 he started working for ORTEC, where he remained a strong professional interest in railways and develops business in this area. As a consultant he lead a team of Operations Research experts working on the alternative crew assignment model for Dutch Railways.

Niels van Oort (HTM Personenvervoer N.V., Den Haag; TU Delft)

Niels van Oort (28) finished his Master study Civil Engineering at the Delft University of Technology in 2003. His thesis dealt with the relation between network planning of public transport and reliability of operations. After his study, he started working at the public transport company of The Hague, HTM. He works as a consultant/researcher at the department of research and development. He is involved in the RandstadRail project, the new light rail connection between the cities of The Hague and Zoetermeer. In this project his main focus is on the new operation control system: a system which shows the driver his punctuality and the dispatchers can monitor the position as well as the punctuality of all the vehicles. This system helps to achieve high reliability of RandstadRail. Besides this project Niels participates in different infrastructure projects and rider ship studies of HTM. At the beginning of 2006, Niels started a PhD study at the Delft University of Technology, section Transport and Planning.

Niels is a member of the board of "Jonge Veranderaars", an organization of young rail professionals and he is a board member of "KIVI NIRIA, verkeerskunde en vervoerstechniek", The Dutch Engineers Association, department of transport and traffic.

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REGISTRATION FORM "LUNTEREN 2007"

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Family name : ……………………………………………………….……

First Name : ………………………………………………………….……

Affilation   : ………………………………………………………….……

Address   : ……………………………………………………………….

Postal Code : …………………….   City: ………………………………………………

Telephone : ……………………..   E-mail address: ………………………………

Date   : …………………….   Signature: …………………………………………

Full Ph.D. Arrangement (tag your choices)   **Fee**

☐   I am LNMB PhD student and **attend the entire meeting** including the seminar on
        Thursday (Price includes registration fee, lodging in double room, meals and € 50,-
        reduction paid by the LNMB) ; Price: € 280,-   € …………

☐   I would like a single room (€ 50,- extra charge) ; Price: € 330,- € …………

Standard reservation (tag your choices; calculate your fee)   **Fee**

☐   I will attend the conference on Tuesday (incl. coffee, tea and lunch); Price: € 37,50   € …………

☐   I will attend the conference on Wednesday (incl. coffee, tea and lunch); Price: € 37,50 € …………

☐   I will attend the seminar on Thursday (incl. coffee, tea, lunch and drinks); Price: € 50 € …………

☐   I will attend dinner on Tuesday; Price: € 32,50   € …………

☐   I will attend dinner on Wednesday; Price: € 32,50   € …………

☐   I wish to reserve a single room for Tuesday night (incl. breakfast); Price € 75   € …………

☐   I wish to reserve a single room for Wednesday night (incl. breakfast); Price € 75 € …………

☐   I wish to reserve a double room for Tuesday night (p.p. incl. breakfast); Price € 50   € …………

☐   I wish to reserve a double room for Wednesday night (p.p. incl. breakfast); Price € 50 €. …………

In case you share a room: Room mate: ……………………………………………………………………….

■   Registration fee   <u>€   **40**   </u>.

TOTAL FEE (please, fill in your total fee)   **€ …..……..**

We don't send invoices or confirmations. In case you wish to check your registration look at the LNMB website
www.lnmb.nl/conferences/lunteren2007/participants.html ; when you wish to receive a receipt for the fee, send an
e-mail to lnmb@math.leidenuniv.nl.
Transfer your fee ultimately December 15 to bank account 85.79.82.990 of Maastricht University with the
notes: "**no. 35010010 N**" (mention this number is absolutely necessary) and "**fee LNMB/Lunteren 2007** for
………… (fill in the name(s))".
Please, return this form **ultimately December 15**, to:
Prof.dr. L.C.M. Kallenberg, Mathematical Institute, Leiden University, PO Box 9512, 2300 RA Leiden.

REGISTRATION FORM

I hereby register for the LNBM/NGB seminar "**Operations Research and Public Transportation**", which will be held in Conference Center "De Werelt", Lunteren, January 18, 2007.

Family name: …………………………………………………………………………………

First name: …………………………………………………………………………………

Title: …………………………………………………………………………….…………..

Company/Institute: ……………………………………………………………………….

Address: …………………………………………………………………………………

Postal Code: ………………….   **City:** ………………………………………

Telephone number: ………………..   **E-mail:** …………………………………

Date: ………………………….   **Signature:** …………………………………….…..

Below, please tick the appropriate box:

I am:

LNMB/NGB member (Registration fee € 75):   ☐

Other (Registration fee € 125):   ☐

FEE PAYMENT INSTRUCTIONS WILL BE SENT TO YOU AFTER REGISTRATION

Send the registration form before January 8, 2007 by regular mail or e-mail or by fax to

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