BRÅKET

Information om seminarier och högre undervisning i matematiska ämnen i Stockholmsområdet

NR 9 **FREDAGEN DEN 5 MARS 2004**

BRÅKET

Veckobladet från Institutionen för matematik vid Kungl Tekniska Högskolan och Matematiska institutionen vid Stockholms universitet

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Sista manustid för nästa nummer: Torsdagen den 11 mars kl. 13.00.

Disputation i matematik

Jörgen Östensson disputerar på avhandlingen *Trace Formulae for Fourth Order Differential Operators and their Applications* fredagen den 5 mars kl. 14.00 i Kollegiesalen, Administrationsbyggnaden, KTH, Valhallavägen 79. Se Bråket nr 7 sidan 3.

Money, jobs: Se sidorna 5 – 7.

SEMINARIER

Må 03–08 kl. 15.15 – 16.00. Seminarium i finansiell matematik. Henrik Engström presenterar sitt examensarbete: *Tidsseriegranskning på Statistiska centralbyrån, Riksbankens finansmarknadsstatistik (FMR).* Seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se Bråket nr 8 sidan 4.

Ti 03–09 kl. 14.00 – 15.00. Mittag-Leffler Seminar. Idun Reiten, Trondheim: *An introduction to cluster categories.* Institut Mittag-Leffler, Auravägen 17, Djursholm.

Ti 03–09 kl. 15.30 – 16.30. Mittag-Leffler Seminar. Dmitri Piontkovski, Moscow: *Noncommutative commutative algebra: Shafarevich complex instead of Koszul complex.* Institut Mittag-Leffler, Auravägen 17, Djursholm.

On 03–10 kl. 13.00. Seminarium i statistik. Antonio Ponce de Leon, Karolinska Institutet och Department of Epidemiology, IMS-UERJ, Brasilien: *The criterion of T-optimality for discriminating between models: Theoretical results and applications.* Sal B705, Statistiska institutionen, SU, Universitetsvägen 10B, plan 7, Frescati. Se sidan 2.

On 03–10 kl. 13.15 – 14.15. Seminarium i analys och dynamiska system. Jan Boman, SU: *Novikov's inversion formula for the attenuated Radon transform — a new approach.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se Bråket nr 8 sidan 7.

Fortsättning på nästa sida.

Lediga tjänster

Stockholm Biostatistics Graduate Programme söker fem doktorander. Se sidan 4.

Seminarier (fortsättning)

On 03–10 kl. 13.15. Logikseminariet Stockholm-Uppsala. Marko Djordjevic: *The finite submodel property and countably categorical simple structures of rank one.* Sal 3513, Matematiska institutionen, Polacksbacken, Uppsala universitet.

On 03–10 kl. 13.15 – 15.00. Algebra Seminar. Daniela Ferrarello, Catania: *Binomial ideals and graph theory.* Seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se Bråket nr 8 sidan 5.

On 03–10 kl. 15.15. Seminarium i matematisk statistik. Nader Tajvidi, Lunds tekniska högskola: *Multivariate generalized Pareto distributions.* Rum 306 (Cramérrummet), hus 6, Matematiska institutionen, SU, Kräftriket. Se sidan 5.

To 03–11 kl. 14.00 – 15.00. Mittag-Leffler Seminar. William Crawley-Boevey, Leeds: *Indecomposable parabolic bundles and Lie algebras.* Institut Mittag-Leffler, Auravägen 17, Djursholm.

Fr 03–12 kl. 11.00 – 12.00. Optimization and Systems Theory Seminar. Ragnar Wallin, Institutionen för systemteknik, Linköpings universitet: *Efficiently solving semidefinite programs originating from the Kalman-Yakubovich-Popov lemma using general purpose SDP solvers.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 5.

On 03–17 kl. 13.00. Seminarium i statistik. Daniel Thorburn: *Om informationsutvinning ur experimentdata.* Sal B705, Statistiska institutionen, SU, Universitetsvägen 10B, plan 7, Frescati.

On 03–17 kl. 13.15 – 14.15. Seminarium i analys och dynamiska system. Grigori Rozenblioum, Chalmers tekniska högskola, Göteborg: *Spectral properties of some boundary value problems for the Dirac operator with singular potential (joint work with M. S. Agranovich).* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 3.

Fr 03–19 kl. 11.00 – 12.00. Optimization and Systems Theory Seminar. Moritz Diehl, Interdisciplinary Center for Scientific Computing, University of Heidelberg: *Real-time optimization of large scale systems.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 3.

SEMINARIUM I STATISTIK

Antonio Ponce de Leon:
The criterion of T-optimality for discriminating between models: Theoretical results and applications

Abstract: In this talk we will discuss the problem of finding optimal designs for model discrimination and present some theoretical results as well as potential applications. We will show how to obtain local, Bayesian, and sequential T-optimum designs. The issue of estimation-discrimination design procedures will be discussed.

Tid och plats: Onsdagen den 10 mars kl. 13.00 i sal B705, Statistiska institutionen, SU, Universitetsvägen 10B, plan 7, Frescati.

SEMINARIUM I ANALYS OCH DYNAMISKA SYSTEM

Grigori Rozenblioum:
Spectral properties of some boundary value problems for the Dirac operator with singular potential
(joint work with M. S. Agranovich)

Abstract: For computations in atom physics a method of R-matrix is widely used, mathematically based on eigenfunction expansions in eigenfunctions of some boundary value problems (the R-matrix relates some components of the (vector) wave function to other ones). For the Dirac operator in the three-dimensional space, the Coulomb-type electric potential is, unlike the Schrödinger case, not a relatively compact operator, and even the definition of the self-adjoint operator encounters complications. We discuss the definition of the operator and study the properties of eigenfunctions and eigenvalues of two boundary value problems, with traditional placing of the spectral parameter and with spectral parameter in the boundary condition. For the latter problem the spectrum turns out to be rather unusual, consisting of two series of eigenvalues, one of which converges to zero, the other one to infinity. The R-matrix is expressed via the corresponding eigenfunctions.

Tid och plats: Onsdagen den 17 mars kl. 13.15 – 14.15 i seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

OPTIMIZATION AND SYSTEMS THEORY SEMINAR

Moritz Diehl:
Real-time optimization of large scale systems

Abstract: Nonlinear Model Predictive Control (NMPC) is a feedback control technique that uses a nonlinear dynamic process model for prediction and optimization. Feedback is obtained by using the observed system state as initial value of an optimal control problem on a prediction horizon, solving the problem online, and implementing the first part of the optimized control trajectory at the real process. The optimization is repeated after a short time, sufficiently fast to react to disturbances or to the effects of modelling errors.

A major challenge for any nontrivial NMPC application is the real-time optimization of large scale process models of differential algebraic (DAE) or partial differential equation (PDE) type. We present an efficient embedding technique to initialize subsequent problems, implemented in an online algorithm for NMPC, that has already been applied to experimentally control a pilot plant distillation column described by DAE. We show how the technique can be extended to very large scale DAE systems, arising from the discretization of instationary PDE's by the method of lines, and apply this technique to a periodically operated chromatographic separation process.

Tid och plats: Fredagen den 19 mars kl. 11.00 – 12.00 i seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

Stockholm Biostatistics Graduate Programme
announces 5 PhD positions in biostatistics

Stockholm Biostatistics Graduate Programme (SBGP) is a collaboration between Mathematical Statistics at Stockholm University (MS-SU, http://www.math.su.se/matstat) and the Department of Medical Epidemiology and Biostatistics at Karolinska Institutet (MEB-KI, http://www.meb.ki.se). At present, MS-SU has 3 active PhD students and 6 senior scientists in biostatistics and MEB-KI has 4 active PhD students and 7 senior scientists in biostatistics.

We now announce 5 PhD positions in biostatistics. The new positions are funded by grants from the Swedish Foundation for Strategic Research (SSF) and strategic funds from Stockholm University and Karolinska Institutet.

Applicants should have a master level degree or equivalent in statistics, mathematical statistics, biostatistics or related field as well as a strong interest in medical/biological problems. Computational experience is an advantage. The thesis work will be carried out in close collaboration with scientists from the relevant medical/biological field. Some possible projects for a thesis are listed below. For more details on a particular suggested project, contact the first person listed as project leader.

Each graduate student will either be registered at the Division of Mathematical Statistics, Department of Mathematics, Stockholm University, or at the Department of Medical Epidemiology and Biostatistics, Karolinska Institutet.

Applicants should send (i) a cover letter, (ii) curriculum vitae, (iii) names and e-mail addresses of two references, and (iv) one-page statement of research interests. In the cover letter, state preference(s) — if any — among suggested project(s). The application should be written in English and sent to: SBGP, Division of Mathematical Statistics, Department of Mathematics, Stockholm University, SE-106 91 Stockholm, Sweden. Deadline for application is Friday, April 16, 2004.

For further information, please contact the SBGP director Juni Palmgren (juni@math.su.se, telephone +46 8 5248 6120), or any of the co-directors Tom Britton (tomb@math.su.se, telephone +46 8 164534), Yudi Pawitan (yudi.pawitan@meb.ki.se, telephone +46 8 5248 3983), Åke Svensson (akes@math.su.se, telephone +46 8 164569).

Trade union representatives at Stockholm University are Bo Ekengren (SACO, telephone +46 8 162000) and Lars-Åke Säll (ST-ATF, telephone +46 8 162000), and at Karolinska Institutet Lena Rosenberg (lena.rosenberg@meb.ki.se).

Examples of projects

Endemic infectious diseases in heterogeneous communities. Project leaders: Tom Britton (tomb@math.su.se), Johan Giesecke (johan.giesecke@smi.ki.se), and Anders Martin-Löf (andersml@math.su.se).

Genetic association analysis for mapping complex traits. Project leaders: Juni Palmgren (juni@math.su.se), Keith Humphreys (keith.humphreys@meb.ki.se), and Ola Hössjer (ola@math.su.se).

Long time effects of infectious diseases. Project leaders: Åke Svensson (akes@math.su.se) and Johan Giesecke (johan.giesecke@smi.ki.se).

Modelling and analysing antibiotic resistance. Project leaders: Åke Svensson (akes@math.su.se) and Dan Andersson (dan.andersson@smi.ki.se).

Robust analysis and mechanism of noise-resistance in genetic cyclic processes. Project leaders: Joanna Tyrcha (joanna@math.su.se) and Yishao Zhou (yishao@math.su.se).

Statistical approaches in assembly and assessing of biological networks. Project leaders: Rolf Sundberg (rolfs@math.su.se) and Joakim Lundeberg (joakim.lundeberg@biotech.kth.se).

SEMINARIUM I MATEMATISK STATISTIK

Nader Tajvidi:
Multivariate generalized Pareto distributions

Abstract: A more recent approach for modelling extreme events is based on so-called peak over threshold methods. The generalized Pareto distribution (GPD) is widely used for modelling exceedances of a random variable over a high threshold, and it has been shown to be one of the best ways to apply extreme value theory in practice. In this seminar we give a multivariate analogue of the GPD and consider estimation of parameters in some specific bivariate generalized Pareto distributions (BPGD's). We generalize two existing bivariate extreme value distributions and study maximum likelihood estimation of parameters in the corresponding BPGD's. The procedure is illustrated with an application to a bivariate series of wind data. The behaviour of maximum likelihood estimators of parameters is also studied in a small simulation.

Tid och plats: Onsdagen den 10 mars kl. 15.15 i rum 306 (Cramérrummet), hus 6, Matematiska institutionen, SU, Kräftriket.

OPTIMIZATION AND SYSTEMS THEORY SEMINAR

Ragnar Wallin:
Efficiently solving semidefinite programs originating from the Kalman-Yakubovich-Popov lemma using general purpose SDP solvers

Abstract: Many important applications of semidefinite programming in automatic control and signal processing involve constraints originating from the Kalman-Yakubovich-Popov lemma. Often the number of variables is very large, making it difficult to use general purpose SDP solvers. However, if the structure of the SDP is utilized, it is possible to solve a reduced order problem and afterwards reconstruct the solution to the original problem. This will reduce the computational cost significantly, making it possible to solve large problems in reasonable time. Another advantage is that any general purpose primal-dual SDP solver can be used.

Some extensions to further improve efficency will also be discussed. This will require customized software though.

Tid och plats: Fredagen den 12 mars kl. 11.00 – 12.00 i seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

MONEY, JOBS

Columnist: Hans Rullgård, Department of Mathematics, SU. E-mail: hansr@math.su.se.

Info = information. This will be given and repeated until obsolete. Rely on other sources as well.
BBKTH = Bulletin Board at the Department of Mathematics, KTH.
BBSU = Bulletin Board at the Department of Mathematics, SU.
The following information, with links, is also available at http://www.math.su.se/~hansr/mj.html.
Unless stated otherwise, a given date is the last date (e.g. for applications), and the year is 2004. A number without an explanation is a telephone number.

Standard information channels

1. A channel to information from Vetenskapsrådet: http://www.vr.se/naturteknik/index.asp.
2. A channel to information from the European Mathematical Society: http://www.emis.de.

(Continued on the next page.)

3. A channel to information from the American Mathematical Society: http://www.ams.org.
4. KTH site for information on funds: http://www.kth.se/aktuellt/stipendier.
5. Stockholm University site for information on funds: http://www.su.se/forskning/stipendier/databas.php3.
6. Umeå site for information on funds: http://www.umu.se/umu/aktuellt/stipendier_fond_anslag.html.
7. Job announcement site: http://www.maths.lth.se/nordic/Euro-Math-Job.html. This is run by the European Mathematical Society.
8. Stiftelsen för internationalisering av högre utbildning och forskning (STINT) site for information on funds: http://www.stint.se.
9. Nordisk Forskerutdanningsakademi (NorFA) site for information on funds: http://www.norfa.no.
10. Svenska institutet (SI) site for information on funds: http://www.si.se.

New information

Money, to apply for

11. Från Rådet för högre utbildning finns medel att söka för pedagogisk förnyelse, 18 mars. Info: 08-563 088 61, e-post radet@rhu.se. Web-info: http://www.rhu.se/activities/ansokan/2004/forfarande.htm.

Jobs, to apply for

12. Matematisk statistik vid SU och Institutionen för medicinsk epidemiologi och biostatistik vid KI utlyser fem doktorandanställningar i biostatistik, 16 april. Web-info: http://www.math-jobs.com/0266.html. Se sidan 4.
13. Institutionen för matematik och fysik vid Mälardalens högskola söker en universitetsadjunkt i matematik/tillämpad matematik, 22 mars. Info: Peter Gustafsson, 021-10 15 39, e-post peter.gustafsson@mdh.se, Sten Lindstam, 016-15 36 55, e-post sten.lindstam@mdh.se. Web-info: http://www.mdh.se/jobb/VisaAnstallning?id=410.
14. Institutionen för ekonomi och samhälle vid Högskolan Dalarna söker en doktorand i statistik, 15 mars. Info: Kenneth Carling, 023-77 89 67, e-post kca@du.se, Lars Rönnegård, 023-77 85 58, e-post lrn@du.se. Web-info: http://www.du.se/templates/NewsPage____1048.aspx.
15. Högskolan i Malmö utlyser tolv post-doc-anställningar i olika ämnen, 2 april. Info: Peter Jönsson, 040-665 70 05, e-post peter.jonsson@mah.se. Web-info: http://www.mah.se/platsann.asp?DNR=690.
16. Matematiska institutionen vid SU söker en universitetslektor i matematik, 31 mars. Info: Clas Löfwall, 08-16 45 37, e-post clas@math.su.se, Bibi Pehrson, 08-16 22 92, e-post bibi.pehrson@natkan.su.se. Web-info: http://www.insidan.su.se/ledigaanstallningar.php3?jobb=775.

Old information

Money, to apply for

17. Resestipendier och bidrag ur KTHs allmänna resefonder, Ragnar och Astrid Signeuls Stiftelse och Anders Lindstedts Stiftelse utlyses. Ansökningsblankett finns på http://www.kth.se/aktuellt/stipendier/#fondforskar. Sista ansökningsdag 8 mars.
18. Vetenskapsrådet utlyser elva rådsforskartjänster inom naturvetenskap och teknikvetenskap, 8 mars. Web-info: http://www.vr.se/naturteknik/index.asp?id=604&dok_id=4132.
19. Letterstedtska föreningen utlyser anslag till bland annat anordnande av nordiska konferenser och seminarier och gästbesök av nordiska forskare. Anslag utdelas vid två tillfällen under 2004; ansökningar skall vara inkomna senast 15 februari respektive 15 september till Letterstedtska föreningens huvudstyrelse, Box 22333, 104 22 Stockholm. Web-info: se punkt 6 ovan.

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20. Sweden-Japan Foundation (SJF) utlyser stipendier för studier, forskning samt examensarbete och praktik på högskolenivå i Japan. Stipendierna är främst avsedda för studier inom teknik, naturvetenskap, ekonomi, juridik, medicin och handel. Beslut fattas vid två tillfällen per år. Sista ansökningsdagar är den 1 mars och den 1 oktober. Info: SJF, 08-611 68 73. Web-info: http://www.swejap.a.se.

21 Från Knut och Alice Wallenbergs Stiftelse ställs anslag till rektors för KTH förfogande för att ”i första hand användas till bidrag för sådana resor, som bäst befordrar ett personligt vetenskapligt utbyte till gagn för svensk forskning. Bidrag skall främst beviljas till yngre forskare. Medel kan även — efter rektors bedömning — undantagsvis disponeras för utländska gästforskare.” Bidrag kan sökas under hela året. Info: Anette Nyström, 08-790 70 59. Web-info: se punkt 4 ovan.

Jobs, to apply for

22. Institutionen för kemi och biomedicinsk vetenskap vid Högskolan i Kalmar söker tre universitetslektorer: en i matematik (15 mars), en i matematik med inriktning mot matematisk statistik (15 mars) samt en i matematik med inriktning mot didaktik/utbildningsvetenskap (13 april). Info: Håkan Hallmer, 0480-44 62 01, e-post hakan.hallmer@hik.se, Torsten Lindström, 0480-44 64 10, e-post torsten.lindstrom@hik.se, Björn Walther, 0480-44 64 04, e-post bjorn.walther@hik.se. Web-info: http://www.hik.se/jobs/cgi-bin/Free_Jobs.exe?countryCode=SE&cgi_Action=LISTJOBS. Se Bråket nr 7 sidorna 5 – 6.