BRÅKET

Information om seminarier och högre undervisning i matematiska ämnen i Stockholmsområdet

NR 35 **FREDAGEN DEN 31 OKTOBER 2008**

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 6 november kl. 13.00.

SEMINARIER

Fr 10−31 kl. 10.00. Seminarium i statistik. *(Observera dagen och tiden!)* **Imbi Traat,** University of Tartu: *Calibration for consistency of estimates.* Sal B705, Statistiska institutionen, SU, Universitetsvägen 10B, plan 7, Frescati. Se sidan 3.

Fr 10−31 kl. 10.30 − 11.30. Joint Automatic Control and Optimization and Systems Theory Seminar. *(Observera tiden!)* **Anders Rantzer,** LTH: *Price mechanisms for distributed control synthesis.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se Bråket nr 34 sidan 7.

Må 11−03 kl. 15.15 − 16.00. Seminarium i matematisk statistik. Eric Nordenstam, Matematik, KTH: *Eigenvalues of GUE matrices and tilings of a hexagon.* Seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se Bråket nr 34 sidan 7.

Ti 11−04 kl. 13.15. Plurikomplexa seminariet. David Witt Nyström, Göteborg: *From complex to convex.* Rum 306, hus 6, Matematiska institutionen, SU, Kräftriket. Se sidan 4.

Fortsättning på nästa sida.

Disputation i numerisk analys

Jesper Carlsson disputerar på avhandlingen *Optimal Control of Partial Differential Equations in Optimal Design* fredagen den 7 november kl. 10.00 i sal F3, KTH, Lindstedtsvägen 26, b.v. Se Bråket nr 34 sidan 8.

Disputation i optimeringslära och systemteori

Johan Karlsson disputerar på avhandlingen *Inverse Problems in Analytic Interpolation for Robust Control and Spectral Estimation* fredagen den 31 oktober kl. 13.00 i sal F3, KTH, Lindstedtsvägen 26, b.v. Se Bråket nr 33 sidorna 8 – 9.

The Philosophy of Logical Consequence

En workshop med denna titel skall äga rum i Uppsala den 31 oktober – 2 november 2008. Se Bråket nr 24 sidan 7 och nr 34 sidan 6.

Money, jobs: Se sidorna 6 – 7.

Seminarier (fortsättning)

Ti 11–04 kl. 15.30 – 16.30. Institut Mittag-Leffler Seminar. Jean-Philippe Nicolas, Université Brest: *Regularity at spacelike and null infinity.* Institut Mittag-Leffler, Auravägen 17, Djursholm. Se sidan 4.

On 11–05 kl. 10.15 – 12.00. Kombinatorikseminarium. Federico Incitti, La Sapienza, Università di Roma: *Dyck partitions, quasi-maximal quotients and Kazhdan-Lusztig polynomials.* Seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 5.

On 11–05 kl. 10.30. Logikseminariet Stockholm-Uppsala. Erik Palmgren: *Remarks on the localic completion of metric spaces.* Sal Å64119, Ångströmlaboratoriet, Uppsala universitet.

On 11–05 kl. 13.15 – 14.15. Seminarium i analys och dynamiska system. Neil Dobbs, KTH: *Ergodic properties of some maps from the exponential family.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 4.

On 11–05 kl. 13.15 – 15.00. Algebra and Geometry Seminar. Carel Faber: *A remark on a conjecture of Hain and Looijenga.* Seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 5.

On 11–05 kl. 16.00 – 17.00. KTH/SU joint Mathematics and CIAM Colloquium. Jens Eggers, University of Bristol: *The role of self-similarity in singularities of PDE's.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Kaffe/te serveras kl. 15.30 i pausrummet, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 4. Se Bråket nr 34 sidan 10.

On 11–05 kl. 19.00. Populärvetenskaplig föreläsning i fysik. Professor Kerstin Jon-And, Fysikum, SU: *ATLAS-experimentet — redo för upptäckter: Om möjligheterna att upptäcka ny fysik vid LHC.* Oskar Kleins auditorium, Roslagstullsbacken 21, AlbaNova universitetscentrum. Se Bråket nr 34 sidan 6.

To 11–06 kl. 10.30. Seminar in Fluid Mechanics. Gaëtan Compère, Université Catholique de Louvain: *Transient mesh adaptivity applied to fluid-structure interaction problems with large displacements.* Seminarierummet, Institutionen för mekanik, KTH, Teknikringen 8. Se Bråket nr 34 sidorna 10 – 11.

To 11–06 kl. 13.15 – 14.15. Minicourse in mathematics. Stephanie Yang: *Moduli of curves. Fourth lecture.* Seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se Bråket nr 32 sidan 7.

To 11–06 kl. 14.00 – 15.00. Institut Mittag-Leffler Seminar. Jeff Winicour, University of Pittsburgh: *Boundary conditions for an isolated system.* Institut Mittag-Leffler, Auravägen 17, Djursholm. Se sidan 6.

To 11–06 kl. 15.15 – 16.15. AlbaNova and Nordita Colloquium in Physics. Professor Elvira Fortunato, Materials Science Department, New University of Lisbon: *The (r)evolution of thin film transistors.* Oskar Kleins auditorium, Roslagstullsbacken 21, AlbaNova universitetscentrum. Se Bråket nr 34 sidan 7.

To 11–06 kl. 15.30 – 16.30. Institut Mittag-Leffler Seminar. Claes Uggla, Karlstads universitet: *Asymptotic silence, asymptotic locality, and asymptotic self-similarity — and breaking thereof.* Institut Mittag-Leffler, Auravägen 17, Djursholm. Se sidan 3.

Fortsättning på nästa sida.

Seminarier (fortsättning)

Fr 11–07 kl. 11.00 – 12.00. Optimization and Systems Theory Seminar. Andrea Gombani, Institute for Biomedical Engineering of the National Research Council, Padova, Italy: *Rational interpolation methods and the Sylvester equation.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se Bråket nr 34 sidan 8.

Fr 11–07 kl. 13.15 – 14.15. Graduate Student Seminar. Alexander Engström, Matematik, KTH: *Algebraic statistics.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 5.

On 11–12 kl. 10.00. Seminarium i statistik. *(Observera tiden!)* **Docent Jan Eklöf,** Handelshögskolan i Stockholm: *On quality of statistical data from surveys and its effects on analysis; examples from Swedish quality index (SKI/EPSI).* Sal B705, Statistiska institutionen, SU, Universitetsvägen 10B, plan 7, Frescati.

On 11–12 kl. 13.15. Algebra and Geometry Seminar. Emilia Mezzetti, Trieste: *Title to be announced.* Rum 306, hus 6, Matematiska institutionen, SU, Kräftriket.

SEMINARIUM I STATISTIK

Imbi Traat:
Calibration for consistency of estimates

Abstract: We consider a domain estimation problem, where the domain estimates do not sum up to the estimated (or known) population total. This inconsistency occurs, e.g. when the population total is known, or is estimated from another survey and is desired to be kept unchanged. We introduce the calibration approach for achieving consistency, and compare the calibrated domain estimators with the minimum variance consistent domain estimators observed in the Ph.D. thesis by Sostra (2007).

Tid och plats: Fredagen den 31 oktober kl. 10.00 i sal B705, Statistiska institutionen, SU, Universitetsvägen 10B, plan 7, Frescati.

INSTITUT MITTAG-LEFFLER SEMINAR

Claes Uggla:
Asymptotic silence, asymptotic locality, and asymptotic self-similarity — and breaking thereof

Abstract: This talk is about the nature of curvature singularities — particularly generic spacelike singularities. I will begin by illustrating the concepts: asymptotic silence, asymptotic locality, and asymptotic self-similarity — and breaking thereof, by means of explicit solutions.

I will then give a brief description of the (Hubble) conformal approach, and discuss how one can formally define the above concepts in this approach. I will then talk about recent developments and future research directions concerning the properties of curvature singularities, especially generic ones, by means of the (Hubble) conformal approach.

Tid och plats: Torsdagen den 6 november kl. 15.30 – 16.30 vid Institut Mittag-Leffler, Auravägen 17, Djursholm.

PLURIKOMPLEXA SEMINARIET

David Witt Nyström:
From complex to convex

Abstract: Andrei Okounkov, and later Robert Lazarsfeld and Mircea Mustata, have shown how to go from complex to convex geometry, by associating convex bodies, known as Okounkov bodies, to line bundles on complex manifolds. One can thereby use classical results like Brunn-Minkowski to prove things about line bundles. We investigate this correlation further, by also taking into account the hermitian metrics on the line bundle, which quite naturally translate to convex functions on the Okounkov body. In the setting of toric manifolds, and thus specifically P^n, this mapping corresponds to a Legendre transform.

Tid och plats: Tisdagen den 4 november kl. 13.15 i rum 306, hus 6, Matematiska institutionen, SU, Kräftriket.

INSTITUT MITTAG-LEFFLER SEMINAR

Jean-Philippe Nicolas:
Regularity at spacelike and null infinity

Abstract: This is a joint work with Lionel Mason. We study the peeling for scalar fields on the Schwarzschild metric. The question of whether there exists a large class of initial data which guarantees that the rescaled solution is regular at null infinity is well understood in flat spacetime for many field equations, including now to a large extent for gravity, but it remains unresolved on a Schwarzschild background. In this talk, I will come back on the history and definition of the peeling, originating in Penrose's 1965 Proc. Roy. Soc. paper, then propose an alternative definition of the peeling that is more amenable to analysis than the usual ones, and give a complete description of the class of data ensuring peeling for the wave equation on the Schwarzschild metric. The classes of data obtained are directly comparable to the corresponding ones in flat spacetime, and our results validate the peeling conjecture completely for scalar fields on the Schwarzschild metric.

Tid och plats: Tisdagen den 4 november kl. 15.30 – 16.30 vid Institut Mittag-Leffler, Auravägen 17, Djursholm.

SEMINARIUM I ANALYS OCH DYNAMISKA SYSTEM

Neil Dobbs:
Ergodic properties of some maps from the exponential family

Abstract: We consider entire maps of the form $z \mapsto \lambda \exp(z)$, where $\lambda \in \mathbb{C}$ is such that the orbit of zero is bounded and such that all periodic points are repelling. For such maps it was known that a σ-finite absolutely continuous invariant measure exists. However, even in the simplest case where $\lambda = 2\pi i$, it was an open question whether the measure could be finite. We show it cannot, i.e., for the class of maps considered, no absolutely continuous invariant probability measure can exist.

This is a joint work with B. Skorulski.

Tid och plats: Onsdagen den 5 november kl. 13.15 – 14.15 i seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

GRADUATE STUDENT SEMINAR

Inget seminarium i denna serie ges fredagen den 31 oktober på grund av Johan Karlssons disputation. Det tidigare annonserade seminariet av Alan Sola flyttas till den 21 november.

KOMBINATORIKSEMINARIUM

Federico Incitti:
Dyck partitions, quasi-maximal quotients and Kazhdan-Lusztig polynomials

Abstract: Kazhdan-Lusztig polynomials were first defined by Kazhdan and Lusztig in [Invent. Math., **53** (1979), 165 – 184]. Since then, many applications have been found, especially to representation theory and to the geometry of Schubert varieties. In 1987 Deodhar introduced parabolic analogues of these polynomials. These are related to their ordinary counterparts in several ways and also play a direct role in other areas, including geometry of partial flag manifolds and the theory of Macdonald polynomials.

In this talk I consider the parabolic Kazhdan-Lusztig polynomials of the quasi-maximal quotients of the symmetric group. I first show how the elements of these quotients are encoded by "rooted partitions" and then I give explicit, closed combinatorial formulas for the polynomials. These are based on a special class of rooted partitions, the "quasi-Dyck" ones, and imply that they are always (either zero or) a power of q.

I conclude with some recent enumerative results on Dyck and quasi-Dyck partitions, showing a connection with random walks on regular trees.

This is partly based on a joint work with Francesco Brenti and Mario Marietti.

Tid och plats: Onsdagen den 5 november kl. 10.15 – 12.00 i seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

ALGEBRA AND GEOMETRY SEMINAR

Carel Faber:
A remark on a conjecture of Hain and Looijenga

Abstract: After recalling the various tautological algebras of the moduli space of curves and some of its partial compactifications and stating several well-known results and conjectures concerning these algebras, I will prove that a 1996 conjecture of Hain and Looijenga is true if and only if two of the stated conjectures are true.

Tid och plats: Onsdagen den 5 november kl. 13.15 – 15.00 i seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

GRADUATE STUDENT SEMINAR

Alexander Engström:
Algebraic statistics

Abstract: We will give an introduction to algebraic statistics and its applications.

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

INSTITUT MITTAG-LEFFLER SEMINAR

Jeff Winicour:
Boundary conditions for an isolated system

Abstract: The prime sources of gravitational radiation can be modelled as isolated systems in which the waves propagate to infinity. However, most numerical simulations of such sources introduce an artificial outer boundary at a finite distance. There has been recent progress in formulating boundary conditions for the Einstein equations which lead to a constraint-preserving well-posed initial-boundary value problem. I will review the basic ideas governing strong well-posedness of the initial-boundary value problem for hyperbolic systems of second-order wave equations, such as the harmonic formulation of Einstein's equations and Maxwell's equations in the Lorentz gauge. For the harmonic Einstein's equations, there are several options akin to Sommerfeld boundary conditions. There remains the problem of assigning appropriate boundary data and providing its geometrical interpretation.

Unless the numerical evolution is matched to an exterior solution, the only possibility is to give homogeneous (vanishing) boundary data which approximate the asymptotic behaviour at infinity. One proposal is to use vanishing curvature data ($\Psi_0 = 0$ in the Newman-Penrose formalism).

However, this results in a second differential order boundary condition that does not fit the theorems for well-posedness of the harmonic problem, but it can be reformulated as a first order condition in Sommerfeld form. I discuss the resulting deficiencies of the $\Psi_0 = 0$ boundary condition and alternative boundary conditions which give a more accurate asymptotic approximation. The outstanding remaining problem is the geometrical reformulation of the boundary condition.

Tid och plats: Torsdagen den 6 november kl. 14.00 – 15.00 vid Institut Mittag-Leffler, Auravägen 17, Djursholm.

MONEY, JOBS

Columnist: Johannes Lundqvist, Department of Mathematics, Stockholm University. E-mail: johannes@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://www2.math.su.se/~johannes/mj.html.
Unless stated otherwise, a given date is the last date (e.g. for applications), and the year is 2008. 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.
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://www2.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.

(Continued on the next page.)

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

Jobs to apply for

11. Lunds universitet söker en biträdande universitetslektor (associate senior lecturer) i matematik med inriktning mot icke-linjära partiella differentialekvationer. Sista ansökningsdag är den 28 november. Web-info: http://www.science.lu.se/upload/LUPDF/natvet/Utlysningar/081128_3331e.pdf.
12. SU söker tre doktorander i matematikämnets didaktik med följande inriktningar: Bedömning i matematik. Mångkulturalitet. Grundläggande matematiskt kunnande. Sista ansökningsdag är den 20 november. Web-info: http://www.umn.su.se/content/1/c6/05/03/16/doktanst_did08.pdf.

Old information

Money to apply for

13. Stiftelsen G. S. Magnusons fond utdelar stipendier och anslag inom ämnesområdet matematik för följande ändamål: Stöd till doktorander. Stöd till den som önskar ytterligare meritera sig efter doktorsexamen. Stöd till svenska forskare för forskning hemma eller i utlandet samt för inbjudan av utländska gästforskare. Bidrag för att kvarhålla forskare inom landet. Stöd till den som inom sin verksamhet utnyttjar matematik och som önskar bidrag till vetenskaplig förkovran inom ämnet. Sista ansökningsdag är den 2 februari 2009. Web-info: http://www.kva.se/KVA_Root/swe/awards/scholarships/detail_scholarships.asp?grantsId=45.

Jobs to apply for

14. SU söker en doktorand i matematisk statistik. Sista ansökningsdag är den 20 november. Web-info: http://www.math.su.se/content/1/c6/02/88/59/foutb0810_sve.pdf. Se Bråket nr 34 sidan 9.
15. Försvarets radioanstalt (FRA) söker en matematiker/kryptolog. I arbetet ingår bland annat att med matematiska metoder analysera och värdera signalskyddssystem, analysera och konstruera algoritmer och att göra teoretiska utredningar av matematisk och matematisk-statistisk karaktär. Sista ansökningsdag är den 17 november. Web-info: http://www.fra.se/tjanst-0188.shtml.
16. Københavns Universitet söker doktorander i matematik. Sista ansökningsdag är den 1 januari 2009. Web-info: http://www.math.ku.dk/english/programmes/ph.d/apply/.
17. Institut Mittag-Leffler announces a number of Post Doctoral Fellowship Grants for the academic year 2009/2010. The subject areas for the year's two programs are: Mathematical Logic: set theory and model theory (September 1 – December 15, 2009). Dynamics and PDE's (January 15 – June 15, 2010). Last day for application is January 20, 2009. Web-info: http://www.mittag-leffler.se/programs/0910/grants.php.
18. Umeå universitet söker två universitetslektorer i matematik, varav en är med inriktning mot matematisk analys. Sista ansökningsdag är den 15 december. Web-info: http://www.umu.se/umu/aktuellt/arkiv/lediga_tjanster/312-3204,3036-08.html.
19. Umeå universitet söker en professor i matematisk statistik. Sista ansökningsdag är den 15 december. Web-info: http://www.umu.se/umu/aktuellt/arkiv/lediga_tjanster/311-3037-08.html.
20. Skolan för datavetenskap och kommunikation (CSC) vid KTH kungör "the Dahlquist Postdoctoral Fellowship", uppkallat efter professor Germund Dahlquist, KTHs pionjär inom numerisk analys. Priset är forskning på heltid på KTH Numerisk Analys. Prisperioden är ett år, och kan förlängas med ytterligare ett år. Sista ansökningsdag är den 15 november. Web-info: http://www.kth.se/csc/om/priser/dqf/1.14813?l=sv_SE.
21. University of Iceland söker en "Associate Professor" i tillämpad matematik. Sista ansökningsdag är den 1 november. Web-info: http://www.raunvis.hi.is/Reiknifr/.