BRÅKET

Information om seminarier och högre undervisning i matematiska ämnen i Stockholmsområdet

NR 19 **FREDAGEN DEN 15 MAJ 2009**

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: Tisdagen den 19 maj kl. 13.00.

SEMINARIER

Fr 05–15 kl. 11.15 – 12.15. DNA-seminariet Uppsala-KTH (Dynamical systems, Number theory, Analysis). Adrian Diaconu: *Moments of quadratic Dirichlet L-functions.* Seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se Bråket nr 18 sidan 6.

Må 05–18 kl. 15.30 – 16.30. SU/Nordita High Energy and Gravity Seminar. Ella Jamsin, Brussels: *Hidden symmetries as a black hole solution generating technique.* Rum A5:1041 (CoPS grupprum), AlbaNova universitetscentrum. Se Bråket nr 18 sidan 4.

Ti 05–19 kl. 13.15 – 14.15. DNA-seminariet Uppsala-KTH (Dynamical systems, Number theory, Analysis). Maria Saprykina, KTH: *Title to be announced.* Sal 64119, Ångströmlaboratoriet, Uppsala universitet.

Ti 05–19 kl. 13.15. Plurikomplexa seminariet. Aron Lagerberg, Göteborg: *A generalization of the Lelong number.* Rum 306, hus 6, Matematiska institutionen, SU, Kräftriket. Se sidan 4.

Fortsättning på nästa sida.

Disputation i matematik

Michael Björklund skall disputera vid KTH på avhandlingen *Limit Theorems for Ergodic Group Actions and Random Walks* tisdagen den 26 maj kl. 13.00. Se sidan 11.

Nästa nummer av Bråket

utkommer onsdagen den 20 maj. Material måste vara red. tillhanda senast den 19 maj kl. 13.00.

Disputation i matematik

Karl Rökaeus skall disputera på avhandlingen *Grothendieck Rings and Motivic Integration* fredagen den 15 maj kl. 10.00 i sal 14, hus 5, Matematiska institutionen, SU, Kräftriket. Se Bråket nr 17 sidorna 11 – 12.

Algebra and Geometry: A Nordic conference for graduate students

Denna skall äga rum vid KTH den 27 – 29 maj. Se sidorna 9 – 10.

Money, jobs: Se sidorna 11 – 12.

Seminarier (fortsättning)

Ti 05–19 kl. 14.00–15.00. Institut Mittag-Leffler Seminar. Tony Guttmann, University of Melbourne, Victoria: *Lattice Green functions and Calabi-Yau equations.* Institut Mittag-Leffler, Auravägen 17, Djursholm. Se sidan 4.

Ti 05–19 kl. 15.30–16.30. Institut Mittag-Leffler Seminar. Mathias Lindholm, SU: *Dynamic random networks.* Institut Mittag-Leffler, Auravägen 17, Djursholm. Se sidan 5.

On 05–20 kl. 10.15–12.00. Kombinatorik-algebra-seminarium. Benjamin Nill, Berlin: *Hollow lattice polytopes and Ehrhart theory.* Seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 4.

On 05–20 kl. 11.00–12.00. Dubbelseminarium om fasproblemet inom kristallografi. (Det första seminariet.) **Dr. Gérard Bricogne,** Global Phasing Ltd, Cambridge, United Kingdom: *Mathematical aspects of X-ray crystallography: Status and open problems.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidorna 6–7.

On 05–20 kl. 13.15–14.15. Seminarium i analys och dynamiska system. Adam Jonsson: *Lowpass filters for dilations of* $\mathbb{R}^2$ *of determinant* ± 2. Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 5.

On 05–20 kl. 13.15. Algebra and Geometry Seminar. V. Dotsenko: *Gröbner bases for operads.* Seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

On 05–20 kl. 14.30–15.30. KCSE (KTH Computational Science and Engineering Centre) Seminar. Anders Forsgren, Optimeringslära och systemteori, KTH: *On the behaviour of the conjugate-gradient method on ill-conditioned problems.* Rum RB15, Roslagstullsbacken 15, AlbaNova universitetscentrum. Se Bråket nr 18 sidan 7.

On 05–20 kl. 14.40–15.40. Dubbelseminarium om fasproblemet inom kristallografi. (Det andra seminariet.) **Dr. Tomas Lundqvist,** AstraZeneca: *Title to be announced.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidorna 6–7.

On 05–20 kl. 15.15. Seminarium i matematisk statistik. Stanislav Volkov, University of Bristol: *Going through a passport control with wife, or sequential adsorption at extremes.* Rum 306 (Cramérrummet), hus 6, Matematiska institutionen, SU, Kräftriket. Se sidan 3.

Må 05–25 kl. 13.15–14.15. DNA-seminariet Uppsala-KTH (Dynamical systems, Number theory, Analysis). Emmanuel Breuillard, Univerité Paris-Sud, Orsay: *Title to be announced.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

Må 05–25 kl. 13.15. Seminarium i teoretisk datalogi. Joachim Parrow, Uppsala universitet: *Three holy grails of programming models.* Rum 1537, KTH CSC, Lindstedtsvägen 3, plan 5. Se sidan 8.

Må 05–25 kl. 14.00–15.00. Seminar, organized by KTH Grants Office. Anders Hedman, KTH Grants Office: *The EU Framework Programme — A way to increased funding?* Sammanträdesrum 3424 (innanför pausrummet), Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 4. Förhandsanmälan krävs. Se sidan 9.

Fortsättning på nästa sida.

Seminarier (fortsättning)

Må 05–25 kl. 14.45–15.45. DNA-seminariet Uppsala-KTH (Dynamical systems, Number theory, Analysis). Uri Shapira, Hebrew University: *Title to be announced.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

Ti 05–26 kl. 13.00. Seminarium i statistik. *(Observera dagen och lokalen!)* **Professor Robert Fildes,** Lancaster University: *Business forecasting and statistical modelling: optimally combining disparate information.* Hörsal B3, Statistiska institutionen, SU. Se sidan 8.

Ti 05–26 kl. 18.00. Populärvetenskaplig föreläsning i fysik. Professor Gen Larsson, Bioteknologi, KTH: *Biologiska celler som fabriker: Om cellers förmåga att tillverka vardagens produkter.* Oskar Kleins auditorium, Roslagstullsbacken 21, AlbaNova universitetscentrum. Se sidan 5.

On 05–27 kl. 13.15. Seminarium i teoretisk datalogi. Elchanan Mossel, UC Berkeley and Weizmann Institute of Science: *Quantitative social choice theory.* Rum 1537, KTH CSC, Lindstedtsvägen 3, plan 5. Se sidan 8.

On 05–27 kl. 13.15–15.15. Algebra and Geometry Seminar. *(Observera lokalen!)* **Christian Lundkvist:** *Title to be announced.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

On 05–27 kl. 18.00–19.00. Offentlig föreläsning på Kungl. Vetenskapsakademien. Professor Alan Sokal, New York University, USA: *What is science and why should we care?* Kungl. Vetenskapsakademien, Lilla Frescativägen 4A, Stockholm. Se sidan 7.

Fr 05–29 kl. 14.30. Kista Science Seminar. Lars Bergström, Fysikum, SU: *Dark matter, dark energy and black holes.* Sal C1, Electrum, Isafjordsgatan 22, Kista. Se sidan 10.

SEMINARIUM I MATEMATISK STATISTIK

Stanislav Volkov:
Going through a passport control with wife,
or sequential adsorption at extremes

Abstract: In a simple version of a cooperative sequential adsorption model, particles consecutively arrive on the set of vertices $\{1, 2, \dots, M\}$, uniformly spaced on a circumference. A particle arriving at time $t = 0, 1, 2, \dots$ gets attached to a vertex j with probability proportional to $\beta^{N(t,j)}$ where $N(t, j)$ is the number of particles already attached to the vertices in a certain neighbourhood of vertex j. Examples of such a neighbourhood are:

(1) the vertex itself and its left neighbour (asymmetric case);
(2) the vertex itself and its left and right neighbours (symmetric case).

We are interested in the long-time behaviour of this process. Our most recent results cover the cases when $\beta = 0$ and $\beta = +\infty$, the situations which can be quite naturally interpreted in a queueing theory setup.

The talk is based on joint work with Vadim Scherbakov.

Tid och plats: Onsdagen den 20 maj kl. 15.15 i rum 306 (Cramérrummet), hus 6, Matematiska institutionen, SU, Kräftriket.

PLURIKOMPLEXA SEMINARIET

Aron Lagerberg:
A generalization of the Lelong number

Abstract: Lelong numbers, introduced by Pierre Lelong in the 1950's, provide us with a way of measuring singularities of plurisubharmonic functions. I will discuss a generalization of the Lelong numbers, introduced by Bo Berndtsson, which measures the singularity of a psh-function f at a point x, relative to a function ψ. In particular I will discuss under what conditions, as a function of x, the generalized Lelong number is upper semi-continuous in the Zariski topology. For the classical Lelong number, this is a well-known theorem due to Yum-Tong Siu.

Tid och plats: Tisdagen den 19 maj kl. 13.15 i rum 306, hus 6, Matematiska institutionen, SU, Kräftriket.

INSTITUT MITTAG-LEFFLER SEMINAR

Tony Guttmann:
Lattice Green functions and Calabi-Yau equations

Abstract: The probability of return to the origin of a random walker on a lattice can be expressed in terms of the lattice Green function for that lattice. For the regular three-dimensional lattices, the lattice Green functions, evaluated at a particular point, give rise to the famous Watson integrals. More generally, they can be expressed as products of two elliptic integrals of the first kind. For four-dimensional generalizations of the regular three-dimensional lattices, the lattice Green functions can be expressed as four-dimensional integrals. We evaluate these by showing that their solutions are all expressible in terms of fourth order linear Fuchsian ODEs. More surprisingly, these all satisfy the Calabi-Yau condition. Similar ODEs arise in string theory, an observation which makes the first connection we have seen between classical probability theory and string theory.

Tid och plats: Tisdagen den 19 maj kl. 14.00 – 15.00 vid Institut Mittag-Leffler, Auravägen 17, Djursholm.

KOMBINATORIK-ALGEBRA-SEMINARIUM

Benjamin Nill:
Hollow lattice polytopes and Ehrhart theory

Abstract: Lattice-point-free convex bodies have been studied intensively in the geometry of numbers. In the world of lattice polytopes their counterparts are hollow lattice polytopes: lattice polytopes without interior lattice points. There are many open questions and conjectures about these interesting geometric objects.

In this talk I will discuss two invariants, the degree and the codegree, that appear naturally in Ehrhart theory and that give a quantitative measure of the 'hollowness' of a lattice polytope. The main result I would like to present is a structure theorem on lattice polytopes with large codegree. Its main application is a finiteness result on Ehrhart h^*-polynomials.

This is joint work with Victor Batyrev, Christian Haase and Sam Payne.

Tid och plats: Onsdagen den 20 maj kl. 10.15 – 12.00 i seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

INSTITUT MITTAG-LEFFLER SEMINAR

Mathias Lindholm:
Dynamic random networks

Abstract: A dynamic random network in continuous time is considered where nodes as well as edges are born and die. The node population is Markovian and so is the creation and deletion of edges, given the node population. Each node is at birth assigned a random social index which affects its ability of creating edges. In this talk we derive some model properties and discuss open questions and extensions of the model.

This is joint work with Tom Britton.

Tid och plats: Tisdagen den 19 maj kl. 15.30 – 16.30 vid Institut Mittag-Leffler, Auravägen 17, Djursholm.

SEMINARIUM I ANALYS OCH DYNAMISKA SYSTEM

Adam Jonsson:
Lowpass filters for dilations of $\mathbb{R}^2$ of determinant ± 2

Abstract: A necessary condition for a periodic function $p(\xi)$, $\xi \in \mathbb{R}^n$, to be the squared modulus of a lowpass filter for a multiresolution analysis (MRA) with respect to a dilation A is that

$$\sum_{d \in \mathcal{D}} p(A^{-1}(\xi + d)) = 1$$

for any complete set of coset representatives $\mathcal{D}$ for $\mathbb{Z}^n / A(\mathbb{Z}^n)$. By modelling the dynamics on a binary sequence space, Gundy has given a characterization of lowpass filters for the dyadic dilation $A = 2$ in terms of the properties of the Markov process that a function satisfying this condition induces on the unit interval. The fact that $|\mathcal{D}| = |\det(A)|$ allows us to use the same approach in higher dimensions when $|\det(A)| = 2$. We regard two filters to be equal if their induced processes on the sequence space are identical and show that when $\det(A) = 2$, every lowpass filter on $\mathbb{R}^2$ corresponds to one on $\mathbb{R}$, where the dilation is ± 2. We also show that this is not true in the case $\det(A) = -2$ and describe lowpass filters for such dilations.

This is joint work with R. Gundy.

Tid och plats: Onsdagen den 20 maj kl. 13.15 – 14.15 i seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

POPULÄRVETENSKAPLIG FÖRELÄSNING I FYSIK

Gen Larsson:
Biologiska celler som fabriker:
Om cellers förmåga att tillverka vardagens produkter

Sammanfattning: Celler från olika organismer har sedan urminnes tider använts för att göra olika produkter som är av intresse för människan. Idag omfattar denna teknik allt från livsmedel och läkemedel till bränsle och tekniker för att förbättra miljön. Vi börjar berättelsen i historiens ursprung och tar oss fram till dagens viktiga produkter.

Tid och plats: Tisdagen den 26 maj kl. 18.00 i Oskar Kleins auditorium, Roslagstullsbacken 21, AlbaNova universitetscentrum.

DUBBELSEMINARIUM OM FASPROBLEMET INOM KRISTALLOGRAFI

Mathematics plays an important role in many aspects of drug discovery. A prime example is related to phase retrieval, which involves the problem of recovering a function from its Fourier transform magnitude. One of the most important applications of solving this inverse problem arises in X-ray crystallography, where the goal is to recover the atomic structure of a crystal from X-ray diffraction patterns. Although initially used to determine the structure of small molecules (e.g. salts, metals, minerals, as well as various inorganic molecules), an increasingly important application has been within structural biology, where the goal is to determine the structure of biological macromolecules. Macromolecular X-ray crystallography has come to revolutionize structural biology and is currently an indispensable method within drug discovery in the pharmaceutical industry. However, to solve the phase retrieval problem in macromolecular X-ray crystallography requires the usage of sophisticated mathematics, and partial solutions has lead to numerous Nobel prizes. Wikipedia (http://en.wikipedia.org/wiki/X-ray_crystallography) serves as a good point of entry for more information about X-ray crystallography.

The Center for Industrial and Applied Mathematics (CIAM) has the benefit of hosting Dr. Gérard Bricogne from Global Phasing and Dr. Tomas Lundqvist from AstraZeneca. On Wednesday, May 20, there is a unique opportunity for those who are interested in learning more about phase retrieval in macromolecular X-ray crystallography. Both visitors will be giving a seminar each aimed towards mathematicians. Dr. Bricogne will provide an overview of computational methods in X-ray crystallography and Dr. Lundqvist will discuss how X-ray crystallography is used in commercial drug discovery.

First seminar:

Gérard Bricogne:
Mathematical aspects of X-ray crystallography:
Status and open problems

Abstract: The problem of determining crystal structures from X-ray diffraction data looks deceptively like a mathematical problem of "phase recovery" but is fraught with special difficulties, especially in the macromolecular field, where experimental phasing techniques have played an essential role. The real criterion of success — the chemical plausibility of an electron-density map — is an elusive one from the mathematical point of view. Various ways of approximating it to devise tractable statistical criteria and/or re-use accumulated structural knowledge in the solution of new structures will be described, as well as open possibilities at the junction between X-ray crystallography and electron microscopy. The latter area is a potentially fertile ground for exploiting novel regularization techniques.

Time and place: Wednesday, May 20, at 11.00 – 12.00 in seminar room 3721, Department of Mathematics, KTH, Lindstedtsvägen 25, floor 7.

Second seminar:

Tomas Lundqvist: Title to be announced

Abstract: To be announced.

Time and place: Wednesday, May 20, at 14.40 – 15.40 in seminar room 3721, Department of Mathematics, KTH, Lindstedtsvägen 25, floor 7.

Further details will be given at CIAM's home page for seminars:
http://www.ciam.kth.se/seminars.html.

(Continued on the next page.)

Short background information about the speakers

Dr. Gérard Bricogne is a French citizen, born in 1949 in Aix en Provence, France. Degrees in Pure Mathematics and in Chemistry, University of Nancy, France, 1972. PhD at the MRC Laboratory of Molecular Biology, Cambridge, UK. Research director at CNRS, member of the French Academy of Sciences. In 1996 he founded the non-profit company Global Phasing Ltd, Cambridge, England. He holds an honorary doctorate at Uppsala University 2005. He has also received numerous awards for his scientific contributions: Grammaticakis-Neumann prize, French Academy of Sciences (1985); Dorothy Hodgkin Prize, British Crystallographic Association (1994); Patterson award, American Crystallographic Association (1999); Gregori Aminoff Prize, Royal Swedish Academy of Sciences (2008).

For those who are interested, the following publications provide entry points to Dr. Bricogne's main scientific contributions:

G. Bricogne, *Maximum entropy and the foundations of direct methods.* Acta Crystallographica, A40, pp. 410 – 445 (1984).

G. Bricogne, *Fourier transforms in crystallography: theory, algorithms and applications.* In International tables for crystallography, vol. B, pp. 23 – 106 (1993).

G. Bricogne, *The Bayesian statistical viewpoint on structure determination: basic concepts and examples.* Meth. Enzymol., 276, pp. 361 – 423 (1997).

Dr. Tomas Lundqvist is the director of Cell, Protein and Structural Sciences Sweden, which is a regional center within the global AstraZeneca organization Discovery Enabling Competences and Sciences (DECS). The center has a number of highly skilled teams set up to provide cell, protein, biophysics and structural science capabilities to support AstraZeneca R & D with small molecule and biologics based drug discovery projects and to drive scientific and technical innovation within those core areas. The current scientific focus is around efforts to better understand and expand drugable space as well as to increase success rate for challenging targets and target classes including membrane proteins such as GPCRs and ion-channels.

OFFENTLIG FÖRELÄSNING PÅ KUNGL. VETENSKAPSAKADEMIEN

Alan Sokal: What is science and why should we care?

Speaker: Alan Sokal is Professor of Physics at New York University, USA, and Professor of Mathematics at University College, London, UK. His main research interests are in statistical mechanics and quantum field theory, but he became better known to the wider academic community through the so-called "Sokal hoax" in 1996. His most recent book is "Beyond the Hoax: Science, Philosophy and Culture" (Oxford University Press, 2008).

Abstract: At one level, the topic of this talk is the relation between science and society. The deeper theme, however, is the importance, not so much of science, but of the scientific worldview — a concept that goes far beyond the specific disciplines that we usually think of as "science". It will be argued that clear thinking, combined with a respect for evidence — especially inconvenient and unwanted evidence, evidence that challenges our preconceptions — are of the utmost importance to the survival of the human race in the twenty-first century.

Tid och plats: Onsdagen den 27 maj kl. 18.00 – 19.00 på Kungl. Vetenskapsakademien, Lilla Frescativägen 4A, Stockholm.

SEMINARIUM I TEORETISK DATALOGI

Joachim Parrow:
Three holy grails of programming models

Abstract: I shall discuss three important paradigms for formulating models of programming languages, the technical problems involved in unifying them, and how it connects to recent work, joint with Jesper Bengtson, Magnus Johansson and Björn Victor to appear at LICS '09. This will also serve to put the pi-calculus in perspective by explaining its underlying motivations and real achievements and limitations. The intended audience should have a reasonable grasp on programming but needs not be familiar with any particular formal models.

Tid och plats: Måndagen den 25 maj kl. 13.15 i rum 1537, KTH CSC, Lindstedtsvägen 3, plan 5.

SEMINARIUM I STATISTIK

Robert Fildes:
Business forecasting and statistical modelling:
optimally combining disparate information

Abstract: The most common approach to forecasting demand in support of supply chain planning uses a simple statistical model to produce a forecast. This is subsequently judgementally adjusted by the company's demand planners to take into account any exceptional circumstances expected over the planning horizon using a forecasting support system (FSS).

Based on company case studies of more than 5000 adjusted forecasts, this presentation examines the improvements that can be achieved over the statistical system forecast by effective adjustment. Overall, adjustment improves accuracy. The paper compares company forecasts, the unadjusted data from the companies' established FSSs and more advanced statistical models. The company forecasts all suffer from similar errors, depending on the direction and strength of market information that the companies believe they possess.

The company forecasts can be shown to be inefficient and unnecessarily inaccurate. Various combining algorithms can be used to improve forecast accuracy. In practice it will prove difficult to capitalize on these inefficiencies. A possible route forward is through improved forecasting software design, rather than improved statistical modelling.

Tid och plats: Tisdagen den 26 maj kl. 13.00 i hörsal B3, Statistiska institutionen, SU.

SEMINARIUM I TEORETISK DATALOGI

Elchanan Mossel:
Quantitative social choice theory

Abstract: I will survey recent results giving quantitative versions of theorems in economics regarding social choice (voting) functions. The focus of the talk will be a quantitative proof of Arrow's Impossibility Theorem. The proof is based on new combinatorial arguments coupled with use of an inverse hyper-contractive estimate by Borell and non-linear invariance principles.

Tid och plats: Onsdagen den 27 maj kl. 13.15 i rum 1537, KTH CSC, Lindstedtsvägen 3, plan 5.

SEMINAR, ORGANIZED BY KTH GRANTS OFFICE

Anders Hedman:
The EU Framework Programme — A way to increased funding?

Anders Hedman, KTH Grants Office, currently working in the EU Commission as a project officer in the 7th Framework Programme FET Open (Future and Emerging Technologies), will give a presentation on EU research funding and FET Open.

- How the 7th framework programme is organized.
- How you can get the information about the content of coming calls.
- How the content of the calls is decided.
- What could be proposals for FET open?

Please register at the latest on Wednesday, May 20, by sending an e-mail to rlm@kth.se. The presentation will be given in English. Coffee and buns will be served.

Tid och plats: Måndagen den 25 maj kl. 14.00 – 15.00 i sammanträdesrum 3424 (innanför pausrummet), Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 4.

ALGEBRA AND GEOMETRY:
A NORDIC CONFERENCE FOR GRADUATE STUDENTS

We are pleased to announce the Algebra and Geometry Conference, organized by and for Scandinavian graduate students. The meeting will be held during May 27 – 29, 2009, at KTH.

This conference is made possible with generous support from the Göran Gustafsson Foundation.

The deadline to register has passed. Those who still wish to participate are welcome to contact the organizers.

Organizing committee: Christian Lundkvist and Dan Petersen, with additional help from Mats Boij, Sandra di Rocco, and Stephanie Yang.

Talks will be held in room D41, KTH, Lindstedtsvägen 17, during Thursday and Friday. A few talks on Wednesday afternoon, starting with the regular KTH/SU Algebra and Geometry Seminar, are scheduled to be held in room 3721, Department of Mathematics, KTH, Lindstedtsvägen 25, floor 7. You are all welcome to attend!

A preliminary schedule (including abstracts to the talks), a list of speakers and more information are available at the conference web page, located at
http://www.math.kth.se/~stpyang/conf_html/. The schedule (without abstracts) can also be read below.

Wednesday, May 27, room 3721

13.15 – 15.15 **Christian Lundkvist:** *Title to be announced.* (Algebra and Geometry Seminar.)

16.00 – 16.40 **Karl Rökaeus:** *The Grothendieck ring of varieties; an introduction and some open problems.*

17.00 – 17.40 **Distinguished speaker:** *Title to be announced.*

18.00 Dinner.

(Continued on the next page.)

Thursday, May 28, room D41

9.00 – 9.40 **Nils Henry Rasmussen:** *Codes from $P(E)$'s — a concrete look.*
9.40 – 10.10 Coffee.
10.10 – 10.30 **Dan Petersen:** *Bi-elliptic curves of genus* 2.
10.40 – 11.00 **Andrea Hofmann:** *Curves of genus* 2 *on rational normal scrolls.*
11.10 – 11.30 **Qimh Xantcha:** *A treatise on the binomial theorem.*
11.30 – 13.30 Lunch.
13.30 – 13.50 **Patrik Norén:** *Title to be announced.*
14.00 – 14.20 **Valentina Chapovalova:** *Decomposition of Certain $\mathbb{C}[S_n]$-modules into Specht modules.*
14.30 – 14.50 **Jan-Magnus Øklund:** *Castelnuovo polynomials.*
14.50 – 15.20 Coffee.
15.20 – 15.40 **Mehdi Tavakol:** *Title to be announced.*
15.50 – 16.30 **Johan Björklund:** *Rigid isotopy of real algebraic knots of low degree.*

Friday, May 29, room D41

9.00 – 9.40 **Alexander Engström:** *Random ideals, limits, and compactifications.*
9.40 – 10.10 Coffee.
10.10 – 10.30 **Eric Emtander:** *Iterated Frobenius numbers.*
10.40 – 11.00 **Georgios Dimitroglou Rizell:** *Lagrangian knottedness in Symplectic Topology.*
11.10 – 11.30 **Henning Lohne:** *Square-free S-modules with support on a simplicial graph.*
11.30 – 13.30 Lunch.
13.30 – 13.50 **Isac Hedén:** *Russell's hypersurface from a geometric point of view.*
14.00 – 14.20 **Khalid Rian:** *Modular Lie algebras.*
14.30 – 14.50 **Christine Jost:** *Title to be announced.*
14.50 – 15.20 Coffee.
15.20 – 15.40 **Speaker to be announced:** *Title to be announced.*
15.50 – 16.30 **Andreas Holmström:** *Simplicial sheaves and cohomology theories.*

KISTA SCIENCE SEMINAR

Lars Bergström:
Dark matter, dark energy and black holes

Abstract: Our picture of the universe is currently undergoing something of a revolution. Ordinary matter seems to be only 4 – 5 % of the energy density of the universe. I will describe the theoretical foundations and observational evidence of this new picture of the universe.

Coffee and tea with cake will be served in the ground floor open area starting at 14.30, followed by the seminar at 15.00.

Tid och plats: Fredagen den 29 maj kl. 14.30 i sal C1, Electrum, Isafjordsgatan 22, Kista.

DISPUTATION I MATEMATIK

Michael Björklund

skall disputera på avhandlingen

Limit Theorems for Ergodic Group Actions and Random Walks

tisdagen den 26 maj 2009 kl. 13.00 i sal F3, KTH, Lindstedtsvägen 26, b.v.

Abstract of the thesis

This thesis consists of an introduction, a summary and seven papers. The papers are devoted to problems in ergodic theory, equidistribution on compact manifolds and random walks on groups.

In Papers A and B, we generalize two classical ergodic theorems for actions of abelian groups. The main result is a generalization of Kingman's subadditive ergodic theorem to ergodic actions of the group Z^d.

In Papers C, D and E, we consider equidistribution problems on nilmanifolds. In Paper C we study the asymptotic behaviour of dilations of probability measures on nilmanifolds, supported on singular sets, and prove, under some technical assumptions, effective convergences to Haar measure. In Paper D, we give a new geometric proof of an old result by Koksma on almost sure equidistribution of expansive sequences. In Paper E we give necessary and sufficient conditions on a probability measure on a homogeneous Riemannian manifold to be non-atomic.

Papers F and G are concerned with the asymptotic behaviour of random walks on groups. In Paper F we consider homogeneous random walks on Gromov hyperbolic groups and establish a central limit theorem for random walks satisfying some technical moment conditions. Paper G is devoted to certain Bernoulli convolutions and the regularity of their value distributions.

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 2009. 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. Chalmers tekniska högskola ledigförklarar tillsammans med Göteborgs universitet och Karolinska Institutet en "postdoctoral position in the field of mathematical modelling and numerical analysis for radiation particle transport". Sista ansökningsdag är den 1 juni. Web-info:
http://www.chalmers.se/math/EN/news/vacancies/positions/post-doctoral-position.
12. Blekinge Tekniska Högskola söker en universitetslektor i matematik med placering vid sektionen för matematik, maskin- och elektroteknik i Karlskrona. Anställningen omfattar att undervisa, utveckla och planera kurser på grundläggande samt avancerad nivå med inriktning främst mot Liegruppanalys av differentialekvationer. Sista ansökningsdag är den 25 maj. Web-info:
http://www.bth.se/for/employments.nsf/jobs/c79f13a4a7680704c12575a80041636b.
13. Blekinge Tekniska Högskola söker en universitetslektor i matematik med placering vid sektionen för matematik, maskin- och elektroteknik i Karlskrona. Anställningen omfattar att undervisa, utveckla och planera kurser på grundläggande samt avancerad nivå med inriktning främst mot dynamiska system, kryptering samt matematisk programvara. Sista ansökningsdag är den 25 maj. Web-info:
http://www.bth.se/for/employments.nsf/jobs/879eac1e0a877622c12575a800402b4a.

Old information

Money to apply for

14. Stiftelsen P. E. Lindahls fond utlyser två stipendier om vartdera 100 000 kr för studier inom de naturvetenskapliga ämnena. Tidigare har prioritering givits till nydisputerade forskare samt till seniora forskare som är i behov av bidrag till fortsatt utbildning, exempelvis i form av resa till eller vistelse vid annat universitet. Sista ansökningsdag är den 31 augusti. Web-info:
http://www.kva.se/KVA_Root/swe/awards/scholarships/detail_scholarships.asp?grantsId=15.

Jobs to apply for

15. Lunds universitet söker en doktorand i matematik. Tjänsten är placerad vid Matematikcentrum, Lunds Tekniska Högskola. Det egna forskningsarbetet skall ske i tillämpad matematik, i gränslandet mellan bildanalys/datorseende och reglerteknik. Sista ansökningsdag är den 27 maj. Web-info:
http://www3.lu.se/info/lediga/admin/document/PA2009-1620.pdf.
16. Biostokastikum vid Sveriges lantbruksuniversitet, Umeå, söker en forskarassistent i matematisk statistik. Sista ansökningsdag är den 18 maj. Web-info: http://biostochastics.slu.se/aktuellt/lasmer.cfm?136.
17. Lunds universitet söker en biträdande universitetslektor (associate senior lecturer) i matematisk statistik med inriktning mot statistiska metoder och modeller inom biologi och medicin. Sista ansökningsdag är den 31 juli. Web-info: http://www3.lu.se/info/lediga/admin/document/PA2009-1148.pdf.
18. Institutionen för matematik vid KTH söker vikarierande lektorer i matematik. Anställningarna är tidsbegränsade till 6 – 12 månader från och med den 1 juli 2009. Sista ansökningsdag är den 20 maj. Web-info: http://www.math.kth.se/lektorsvik.20090520.pdf.
19. Institutionen för matematik vid KTH söker doktorander i matematik. Sista ansökningsdag är den 22 maj. Web-info: http://www.math.kth.se/doktorand_vt09.html.
20. Uppsala universitet söker en professor i matematisk statistik. Sista ansökningsdag är den 15 maj. Web-info: http://www.math.uu.se/inform/vacant.php.