BRÅKET

Information om seminarier och högre undervisning i matematiska ämnen i Stockholmsområdet

NR 35 **FREDAGEN DEN 2 NOVEMBER 2007**

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 8 november kl. 13.00.

Disputation i numerisk analys

Alexei Loubenets disputerar vid KTH på avhandlingen *An Immersed Finite Element Method and its Application to Multiphase Problems* måndagen den 12 november kl. 13.00. Se sidan 5.

Money, jobs: Se sidorna 10 – 11.

SEMINARIER

Fr 11–02 kl. 11.00. Mittag-Leffler (Post)Graduate Seminar. Stanislav Shaposhnikov, Moscow State University, Russia: *Upper and lower bounds for the densities of transition probabilities for diffusion processes.* Institut Mittag-Leffler, Auravägen 17, Djursholm.

Fr 11–02 kl. 13.15 – 14.15. Graduate Student Seminar. Michael Björklund, Matematik, KTH: *A metric approach to complex analysis.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 5.

Observera att Michael Björklund skall tala vid Graduate Student Seminar den 2 november. I Bråket nr 33 och nr 34 angavs felaktigt att Martin Blomgren skulle vara talare vid detta seminarium. Blomgrens seminarium är flyttat till den 9 november.

Må 11–05 kl. 13.15 – 15.00. Seminar in Analysis and its Applications. Harold S. Shapiro: *What is new in the unit ball? Harry Malmheden's theorem revisited.* Seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 4.

Må 11–05 kl. 15.15. Licentiatseminarium i matematisk statistik. Jens Svensson presenterar sin licentiatavhandling: *Some Asymptotic Results in Dependence Modelling.* Inbjuden diskutant: **Professor Allan Gut,** Matematisk statistik, Uppsala universitet. Seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se Bråket nr 34 sidan 5.

Ti 11–06 kl. 10.15. Plurikomplexa seminariet. Said El Marzguioui, Amsterdam: *The pluripolar hulls and fine analytic curves.* Rum 306, hus 6, Matematiska institutionen, SU, Kräftriket. Se sidan 6.

Fortsättning på nästa sida.

Seminarier (fortsättning)

Ti 11–06 kl. 14.00–15.00. Mittag-Leffler Seminar. Stefan Geiss, University of Jyväskylä, Finland: *Martingale transforms and singular integrals.* Institut Mittag-Leffler, Auravägen 17, Djursholm. Se sidan 4.

Ti 11–06 kl. 15.30–16.30. Mittag-Leffler Seminar. Stanislav Shaposhnikov, Moscow State University, Russia: *Positiveness of invariant measures of diffusion processes.* Institut Mittag-Leffler, Auravägen 17, Djursholm. Se sidan 7.

Ti 11–06 kl. 15.30. Seminar in Theoretical and Applied Mechanics. Mats Wallin, Teoretisk fysik, KTH: *Monte Carlo simulation of phase transitions.* Seminarierummet, Institutionen för mekanik, KTH, Teknikringen 8. Se sidan 8.

On 11–07 kl. 10.15–12.00. Kombinatorikseminarium. Mikael Passare, SU: *Discriminantal coamoebas and zonotopes.* Seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 7.

On 11–07 kl. 10.30. Logikseminariet Stockholm-Uppsala. Richard Garner: *2-dimensional models of type theory (part three).* Sal Å11167, Ångströmlaboratoriet, Uppsala universitet. Se sidan 9.

On 11–07 kl. 11.00. Common SU KoF/KTH Theoretical Physics Seminar. Ingemar Bengtsson, SU: *Anti-de Sitter space and black holes.* Sal FA31, Roslagstullsbacken 21, AlbaNova universitetscentrum.

On 11–07 kl. 13.00. Seminarium i statistik. Gebre Ghilagaber: *Bayesian adjustment of anticipatory covariates in the analysis of retrospective data.* Sal B705, Statistiska institutionen, SU, Universitetsvägen 10B, plan 7, Frescati.

On 11–07 kl. 13.15–14.15. Seminarium i analys och dynamiska system. Brett Wick, USC och KTH: *Bounded analytic projections, holomorphic vector bundles and the Corona problem.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 7.

On 11–07 kl. 13.15–15.00. Algebra and Geometry Seminar. Torsten Ekedahl, SU: *The class of BG for a finite group G.* Seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 6.

On 11–07 kl. 14.30–15.30. KCSE (KTH Computational Science and Engineering Centre) Seminar. Peter Råback, CSC (Finnish IT center for sciences), Finland: *Elmer — an open source finite element software for multiphysical problems.* PDC:s seminarierum, KTH, Teknikringen 14, plan 3. Se sidan 10.

Observera att Peter Råback skall tala vid KCSE Seminar den 7 november. I Bråket nr 34 angavs fel talare vid detta seminarium.

On 11–07 kl. 15.00. Seminarium i matematisk statistik. Andreas Lindell, Swedbank och SU: *Fördelningar för längden av exkursioner i nedknutna slumpvandringar och i Brownsk brygga.* Rum 306 (Cramérrummet), hus 6, Matematiska institutionen, SU, Kräftriket. Se sidan 8.

On 11–07 kl. 15.15–16.15. AlbaNova and Nordita Colloquium in Physics. *(Observera dagen!)* **Frank Wilczek,** Nordita och MIT: *The persistence of ether.* Oskar Kleins auditorium, Roslagstullsbacken 21, AlbaNova universitetscentrum.

Fortsättning på nästa sida.

Seminarier (fortsättning)

On 11–07 kl. 16.00. KTH/SU Mathematics Colloquium. Anders Karlsson, KTH: *Rigidity theory: old and new.* 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 6.

To 11–08 kl. 14.00–15.00. Mittag-Leffler Seminar. Rainer Buckdahn, Université de Bretagne Occidentale, France: *Mean-field backward stochastic differential equations. A limit approach.* Institut Mittag-Leffler, Auravägen 17, Djursholm. Se sidan 9.

To 11–08 kl. 15.30–16.30. Mittag-Leffler Seminar. Robert Adler, Technion, Israel: *Random fields on manifolds, kinematic formulae, and integral geometry in Gauss space. The second lecture of a series of three.* Institut Mittag-Leffler, Auravägen 17, Djursholm. Se Bråket nr 34 sidan 6.

Fr 11–09 kl. 11.00–12.00. Optimization and Systems Theory Seminar. Maben Rabi, Reglerteknik, Skolan för elektro- och systemteknik, KTH: *Level-triggered control.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 6.

Fr 11–09 kl. 11.00. Mittag-Leffler (Post)Graduate Seminar. Thomas Cass: *Title to be announced.* Institut Mittag-Leffler, Auravägen 17, Djursholm.

Fr 11–09 kl. 13.15–14.15. Graduate Student Seminar. Martin Blomgren, Matematik, KTH: *Title to be announced.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

Fr 11–09 kl. 15.00. Small Talk Seminar. Martin Gulbrandsen: *Derived equivalent abelian varieties and semihomogeneous bundles.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 9.

Må 11–12 kl. 13.15. Informellt doktorandseminarium i teoretisk datalogi. Johan Håstad, Teorigruppen, KTH CSC: *On the approximation resistance of a random predicate.* Rum 1537, KTH CSC, Lindstedtsvägen 3, plan 5. Se sidan 8.

Ti 11–13 kl. 13.15–14.15. Seminarium i analys och dynamiska system. *(Observera dagen!)* **Pekka Koskela,** Jyväskylä: *Title to be announced.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

Ti 11–13 kl. 14.15. Seminarium i numerisk analys. *(Observera dagen och tiden!)* **Vladimir G. Danilov,** Moscow Technical University of Communication and Informatics: *Some problems of solitary nonlinear waves interaction. Weak asymptotics approach.* Rum 4523, KTH CSC, Lindstedtsvägen 5, plan 5.

On 11–14 kl. 10.15–12.00. Kombinatorikseminarium. Anders Björner: *Random walks on complex hyperplane arrangements.* Seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 10.

On 11–14 kl. 13.15–14.15. Seminarium i analys och dynamiska system. Mildred Hager, Lund: *Eigenvalue asymptotics for randomly perturbed non-selfajoint operators.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

Fortsättning på nästa sida.

Seminarier (fortsättning)

To 11–15 kl. 14.00 – 15.00. Optimization and Systems Theory Seminar. *(Observera dagen och tiden!)* **Shankar S. Sastry:** *Title to be announced.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

To 11–15 kl. 15.15 – 16.15. AlbaNova and Nordita Colloquium in Physics. Juni Palmgren, Institutionen för medicinsk epidemiologi och biostatistik, Karolinska Institutet: *Mapping genes for complex traits.* Oskar Kleins auditorium, Roslagstullsbacken 21, AlbaNova universitetscentrum.

SEMINAR IN ANALYSIS AND ITS APPLICATIONS

Harold S. Shapiro:
What is new in the unit ball?
Harry Malmheden's theorem revisited

Abstract: In 1934 Harry Malmheden, a pupil of Marcel Riesz, discovered a simple and elegant algorithm for solution of the Dirichlet problem for the Laplace operator in the ball of $\mathbb{R}^d$. Among other consequences, his discovery imples the following remarkable fact: If a double cone with vertex at an interior point y of the ball cuts out portions D, D' from the sphere (in other words, D and D' are in perspective relative to y), then the sum of the harmonic measures of D and D' relative to y equals twice the (suitably normalized) solid angle at the vertex of the cone. (The normalization is such that the entire sphere subtends the angle 1.) We shall present a new proof of Malmheden's theorem and also discuss certain issues it raises, especially regarding the possibility of proving analogous results for other convex bodies.

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

MITTAG-LEFFLER SEMINAR

Stefan Geiss:
Martingale transforms and singular integrals

Abstract: The talk discusses the connection between martingale transforms, in particular transforms of stochastic integrals, and singular integral operators. The background is an unsolved problem due to Burkholder, McConnell and Bourgain about linear norm-equivalences in the classical connection between UMD-transforms of martingales and the Hilbert transform.

We provide results that give new inside where the problem is actually located. In particular, we prove a linear norm equivalence between the Beurling-Ahlfors transformation and UMD-transforms. As a consequence of this probabilistic approach, norms of certain products of Riesz transforms can be computed exactly, which underlines the importance of martingale methods in real analysis.

The talk is based on joint work with S. Montgomery-Smith and E. Saksman.

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

GRADUATE STUDENT SEMINAR

Michael Björklund:
A metric approach to complex analysis

Abstract: We will discuss various (pseudo-)metrics on certain classes of complex domains adapted to some natural classes of morphisms (say, bi-holomorphic maps). By examining the metric properties of the domains relative to these (pseudo-)metrics, we derive some interesting extensions of the theorems of Picard and Wolff-Denjoy to several complex variables. The talk will be accessible to advanced undergraduates.

Tid och plats: Fredagen den 2 november kl. 13.15 – 14.15 i seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

DISPUTATION I NUMERISK ANALYS

Alexei Loubenets

disputerar på avhandlingen

An Immersed Finite Element Method
and its Application to Multiphase Problems

måndagen den 12 november 2007 kl. 13.00 i sal F3, KTH, Lindstedtsvägen 26, b.v. Till opponent har utsetts *professor Michael Shelley,* The Courant Institute, New York University, USA.

Abstract of the thesis

Multiphase flows are frequently encountered in many important physical and industrial applications. These flows are usually characterized by very complicated structure that involves free moving surfaces inside the fluid domain and discontinuous or even singular material properties of the flow. The application range for the multiphase flow phenomena is extremely wide, ranging from processing industry to environmental problems, from biological applications to food industry and so on. Unfortunately, due to the inherent complexity of these problems, their solution proved to be a considerable challenge. Thus, in the many applications, the predictive capability and physical understanding must rely heavily on numerical models.

In this thesis we develop and analyse a finite element based method for the solution of multiphase problems. This thesis consists of four papers. In paper 1 we develop our finite element based method for the elliptic interface problems. The interface jump conditions that are present due to the discontinuity of the coefficients and presence of the singular forces are derived. Using these jump conditions, we enrich the finite element spaces in order to account for the irregularities in the flow. The resulting method was applied to the interface Stokes problem, modelling a thin elastic rubber band immersed in the homogeneous fluid. In order to apply the introduced method, the interface Stokes problem was rewritten as a sequence of three Poisson problems, one for the pressure and two for the velocity components. Paper 2 is an extension of the ideas used in paper 1. Namely, third order Hermitian polynomials are used as basis functions, their modification according to the interface jump conditions is presented and analysed, both theoretically and numerically. The rigorous error analysis of the introduced method for two-dimensional elliptic problems is presented in paper 3. The results imply that our method is second order accurate in the L^2 norm. Finally, paper 4 concerns with the extension of our method to a coupled interface Stokes problem, which contains both singular forces and discontinuities in the material properties. An application to the Rayleigh-Taylor instability problem is presented.

PLURIKOMPLEXA SEMINARIET

Said El Marzguioui:
The pluripolar hulls and fine analytic curves

Abstract: A fine analytic curve is the graph of a finely holomorphic function over a fine domain in the complex plane. For instance analytic discs are particular examples of these curves.

In this talk I will first review some early developments in the study of the propagation of pluripolar sets. Then I will mainly discuss a joint result with Armen Edigarian and Jan Wiegerinck that fine analytic curves are pluripolar sets, and explain how these curves are related to pluripolar hulls. I will afterwards connect this to the following joint result with Tomas Edlund: There are pluripolar sets with large pluripolar hulls without fine analytic structure.

Tid och plats: Tisdagen den 6 november kl. 10.15 i rum 306, hus 6, Matematiska institutionen, SU, Kräftriket.

ALGEBRA AND GEOMETRY SEMINAR

Torsten Ekedahl:
The class of BG for a finite group G

Abstract: In a previous talk I introduced the Grothendieck group of algebraic stacks and showed that it was a (specific) localization of the Grothendieck group of algebraic varieties. The simplest example of an algebraic stack that is not a space is the classifying stack BG of a finite group G. The Euler characteristic of BG is always 1, suggesting that the class of BG should also be 1. I shall discuss the computation of BG for various groups G. (I shall also recall necessary results from the previous lecture.)

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

OPTIMIZATION AND SYSTEMS THEORY SEMINAR

Maben Rabi:
Level-triggered control

Abstract: This talk concerns some switching control problems — where the control signal is switched between different constant levels at times when the state crosses some levels. Such event-driven control generation is more efficient than traditional deterministic policies such as periodic sample-and-hold control; the event-driven polices require lower switching rates for the same performance. This becomes important in Networked Control where the switching rate directly translates into either a communication cost or an attention index.

The search for optimal event-driven control policies leads to problems that combine both optimal control and optimal stopping.

First, I will present a simple problem in finite horizon and present its solution. Then, I will discuss an infinite horizon, average cost control problem. I will describe some plausible lines of attack mainly focusing on strategies that yield approximate solutions. I will characterize the performance of these sub-optimal strategies.

Tid och plats: Fredagen den 9 november kl. 11.00 – 12.00 i seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

MITTAG-LEFFLER SEMINAR

Stanislav Shaposhnikov:
Positiveness of invariant measures of diffusion processes

Abstract: This talk is devoted to weak elliptic equations for measures. Such equations appear as equations for stationary distributions of a diffusion process. We discuss the existence, the uniqueness and the regularity of solutions of such equations. As an application, we obtain sufficient conditions on the coefficients of an infinite-dimensional diffusion that guarantee that the finite-dimensional projections of stationary distributions possess strictly positive densities.

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

KOMBINATORIKSEMINARIUM

Mikael Passare:
Discriminantal coamoebas and zonotopes

Abstract: The coamoeba (or alga) of an algebraic hypersurface $X \subset \mathbf{C}_*^n$ is by definition the image of X under the mapping $(z_1, \ldots, z_n) \mapsto (\arg z_1, \ldots, \arg z_n)$. We will consider the case where X is a discriminant locus associated with an integer matrix B of size $n \times 2$. We prove that the sum of the coamoeba $\mathrm{Arg}(X)$ and the zonotope Π_B built from the row vectors of B, both considered as simplicial chains, is equal to d_B times the fundamental class of the torus $(\mathbf{R}/2\pi\mathbf{Z})^2$. Here d_B is the degree of the dual toric variety $X^\vee$. It also coincides with the dimension of the space of solutions to the A-hypergeometric system, where A denotes the Gale dual of B.

This is joint work with Lisa Nilsson.

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

SEMINARIUM I ANALYS OCH DYNAMISKA SYSTEM

Brett Wick:
Bounded analytic projections,
holomorphic vector bundles and the Corona problem

Abstract: A simple lemma of N. Nikolski connects the existence of a bounded analytic projection with the Operator Corona Problem (existence of a bounded analytic left inverse for an operator-valued function). So, to solve the Corona problem we give a sufficient condition to guarantee the existence of a bounded analytic projection onto a holomorphic family of generally infinite-dimensional subspaces (a holomorphic sub-bundle of a trivial bundle). This sufficient condition is also necessary in the case of finite dimension or codimension of the bundle, so as corollaries of the main result we obtain new results about the Operator Corona Problem. In particular, we find a new sufficient condition and a complete solution in the case of finite codimension.

This is joint work with S. Treil.

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

SEMINAR IN THEORETICAL AND APPLIED MECHANICS

Mats Wallin:
Monte Carlo simulation of phase transitions

Abstract: Monte Carlo simulation is one of the leading calculation tools in physics. It can be used for a variety of problems, in particular for studying different states of matter and phase transitions between these states.

After a discussion of some background about superstates of matter and problems related to phase transitions, I will introduce the Monte Carlo method in statistical physics and explain how it can be used to study these problems. Then I will describe some recent work on Monte Carlo simulation of systems with random disorder and how the results can be connected to recent experiments.

Tid och plats: Tisdagen den 6 november kl. 15.30 i seminarierummet, Institutionen för mekanik, KTH, Teknikringen 8.

SEMINARIUM I MATEMATISK STATISTIK

Andreas Lindell:
Fördelningar för längden av exkursioner
i nedknutna slumpvandringar och i Brownsk brygga

Sammanfattning: Längden för exkursioner i nedknutna slumpvandringar och i den Brownska bryggan studeras. Explicita formler för fördelningarna för de längsta exkursionerna, även simultana fördelningar, tas fram.

Formlerna ges som oändliga summor, där nollställen i en speciell Kummerfunktion behövs. Klassisk sannolikhetsteori och residuekalkyl är verktygen som används för att ta fram formlerna. Svag konvergens ger resultaten för Brownska bryggan. Arbetet har skett i samarbete med professor Lars Holst. Resultaten har tidigare presenterats av Lars Holst i seminarier på KTH samt av mig i samband med min licentiatavhandling.

Tid och plats: Onsdagen den 7 november kl. 15.00 i rum 306 (Cramérrummet), hus 6, Matematiska institutionen, SU, Kräftriket.

INFORMELLT DOKTORANDSEMINARIUM I TEORETISK DATALOGI

Johan Håstad:
On the approximation resistance of a random predicate

Abstract: A predicate is approximation resistant if no probabilistic polynomial time approximation algorithm can do significantly better then the naive algorithm that picks an assignment uniformly at random. In this talk we discuss predicates of Boolean inputs where the width of the predicate is allowed to grow. Samorodnitsky and Trevisan proved that, assuming the Unique Games Conjecture, there is a family of very sparse predicates that are approximation resistant. We prove that, again assuming the Unique Games Conjecture, any predicate implied by their predicate remains approximation resistant and prove that this condition, with high probability, applies to a randomly chosen predicate.

Tid och plats: Måndagen den 12 november kl. 13.15 i rum 1537, KTH CSC, Lindstedtsvägen 3, plan 5.

LOGIKSEMINARIET STOCKHOLM-UPPSALA

Richard Garner:
2-dimensional models of type theory (part three)

Abstract: We continue our investigation into 2-dimensional models of type theory by constructing a 2-dimensional analogue of the usual fibration of types over contexts.

Tid och plats: Onsdagen den 7 november kl. 10.30 i sal Å11167, Ångströmlaboratoriet, Uppsala universitet.

MITTAG-LEFFLER SEMINAR

Rainer Buckdahn:
Mean-field backward stochastic differential equations.
A limit approach

Abstract: In the talk based on recent works with Shige Peng and Juan Li, which have been motivated by recent studies by Lasry and Lions on mean-field approaches for stochastic differential games, in econometrics and finance, we consider the stochastic dynamics of a particle $X^{(N)}$ that is influenced by N other particles which are mutually independent, of the same law as $X^{(N)}$ and independent of the driving Brownian motion, and we study the behaviour of $X^{(N)}$ as N tends to infinity. We show that, with an appropriate choice of the coefficients, the stochastic differential equation (SDE) for $X^{(N)}$ converges to a mean-field equation. The same behaviour is proved for the associated backward SDE (BSDE): Its solution $(Y^{(N)}, Z^{(N)})$ converges to that of a new type of BSDE's which we have called Mean-Field BSDE's. Finally, we discuss the properties of the solution of (decoupled) forward-backward SDE's formed by Mean-Field BSDE's and their associated Mean-Field forward equations.

This is joint work with J. Li (SDU, Weihai) and S. Peng (SDU, Jinan).

Tid och plats: Torsdagen den 8 november kl. 14.00 – 15.00 vid Institut Mittag-Leffler, Auravägen 17, Djursholm.

SMALL TALK SEMINAR

Martin Gulbrandsen:
Derived equivalent abelian varieties
and semihomogeneous bundles

Abstract: The derived category of coherent sheaves on a variety was introduced as a slick way of doing homological algebra. Later, the derived category has also fruitfully been treated as an invariant of the variety. This talk is about non-isomorphic abelian varieties with equivalent derived categories.

The standard example is Mukai's Fourier transform, which is an equivalence between the derived category of an (arbitrary) abelian variety and that of its dual. I will explain work of Mukai and Orlov that gives precise information about when two abelian varieties X and Y can have equivalent derived categories. When they do, it turns out that Y can be viewed as a moduli space of sheaves on X. More precisely, Y parametrizes semihomogeneous sheaves on X, a class of sheaves identified by Mukai, that in some respects resembles line bundles.

Tid och plats: Fredagen den 9 november kl. 15.00 i seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

KCSE SEMINAR

Peter Råback:
Elmer — an open source finite element software for multiphysical problems

Abstract: Elmer is an open source multiphysical simulation software developed by CSC. Elmer development was started in 1995 in collaboration with Finnish universities, research institutes and industry.

Elmer includes physical models of fluid dynamics, structural mechanics, electromagnetics, heat transfer and acoustics, for example. These are described by partial differential equations which Elmer solves by the Finite Element Method (FEM).

Tid och plats: Onsdagen den 7 november kl. 14.30 – 15.30 i PDC:s seminarierum, KTH, Teknikringen 14, plan 3.

KOMBINATORIKSEMINARIUM

Anders Björner:
Random walks on complex hyperplane arrangements

Abstract: The complement of a real hyperplane arrangement consists of a finite number of connected regions. A class of random walks on these regions was introduced and studied by Bidigare-Hanlon-Rockmore, Brown-Diaconis and others. Specialized to the braid arrangement, it contains some well-known walks on permutations, such as random-to-top card shuffle (aka "the Tsetlin library") and inverse riffle shuffle.

I will describe how there are analogous walks on the complement of complex hyperplane arrangements, using cell decompositions. For the braid arrangement this yields, among other things, a Tsetlin library with k shelves.

Tid och plats: Onsdagen den 14 november kl. 10.15 – 12.00 i seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

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://www.math.su.se/~johannes/mj.html.en.

Unless stated otherwise, a given date is the last date (e.g. for applications), and the year is 2007. 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.

(Continued on the next page.)

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. Institut Mittag-Leffler utlyser postdoktorala stipendier för verksamhetsåret 2008/09. Ämnesområdet för hösten 2008 är: "Geometry, analysis and general relativity". Ämnesområdet för våren 2009 är: "Discrete probability". Sista ansökningsdag är den 31 januari 2008. Web-info: http://www.mittag-leffler.se/programs/0809/grants.php.
12. Stiftelsen Längmanska kulturfonden utlyser bidrag för att främja bl.a. naturvetenskaper. Bidrag ges främst till särskilda ändamål, däremot inte till löpande verksamhet, periodiska skrifter och dylikt. Beviljade belopp är i regel i storleksordningen 15 000 – 40 000 kr. Sista ansökningsdag är den 15 januari 2008. Web-info: http://www.langmanska.se/.

Old information

Money to apply for

13. Stiftelsen P. E. Lindahls fond utlyser två stipendier om vartdera 150 000 kronor för vetenskapliga studier eller fortsatt praktisk utbildning i naturvetenskapliga ämnen inom eller utom Sverige. Sökande skall ha avlagt doktorsexamen år 2002 eller senare eller vara behörig att antagas till forskarutbildning och får inte inneha tjänst hos stat eller kommun. Tidigare har prioritering givits till nydisputerade forskare samt seniora forskare som är i behov av bidrag till fortsatt utbildning, exempelvis i form av resa/vistelse vid annat universitet. Sista ansökningsdag är den 17 december. Web-info: http://www.kva.se/KVA_Root/swe/awards/scholarships/detail_scholarships.asp?grantsId=15.

Jobs to apply for

14. Lunds universitet söker en biträdande universitetslektor i matematisk statistik med inriktning mot statistiska metoder inom livsvetenskaper. Sista ansökningsdag är den 14 december. Web-info: http://www.naturvetenskap.lu.se/upload/LUPDF/natvet/Utlysningar/071123_3463.pdf.
15. Umeå universitet söker en doktorand i matematisk ekologi (ledande till doktorsexamen antingen i tillämpad matematik eller teoretisk ekologi). Sista ansökningsdag är den 15 november. Web-info: http://www.math.umu.se/Aktuellt/Vacancies/DoktorandMatematiskEkologi2007.pdf.
16. Göteborgs universitet söker en doktorand i matematik med inriktning mot algebraiska strukturer i fysiken. Sista ansökningsdag är den 15 november. Web-info: http://ledig-anstallning.adm.gu.se/#.
17. Göteborgs universitet söker en doktorand i matematik med inriktning mot numerisk analys av atomära beräkningar. Sista ansökningsdag är den 15 november. Web-info: http://ledig-anstallning.adm.gu.se/#.