BRÅKET

Information om seminarier och högre undervisning i matematiska ämnen i Stockholmsområdet

NR 17 **FREDAGEN DEN 4 MAJ 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 10 maj kl. 13.00.

Disputation i matematik

Rupert Frank disputerar på avhandlingen *Hardy-Lieb-Thirring Inequalities for Eigenvalues of Schrödinger Operators* onsdagen den 9 maj kl. 9.00 i sal F3, KTH, Lindstedtsvägen 26, b.v. Se Bråket nr 16 sidan 4.

Göran Gustafsson Lectures in Mathematics

Dessa äger rum vid KTH den 11, 14 och 16 maj. Se sidan 4.

SEMINARIER

Fr 05–04 kl. 11.00–12.00. Optimization and Systems Theory Seminar. Olaf Schenk, Universität Basel, Schweiz: *Inertia revealing preconditioning for large-scale nonconvex optimizations in biomedical cancer therapy.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se Bråket nr 15 sidorna 8–9.

Må 05–07 kl. 13.15–14.15. DNA-seminariet Uppsala-KTH (Dynamical systems, Number theory, Analysis). Thomas Jordan, University of Warwick: *The dimension of randomly perturbed self-affine sets.* Sal 64119, Ångströmlaboratoriet, Uppsala universitet. Se sidan 4.

Må 05–07 kl. 15.15–16.00. Seminarium i matematisk statistik. Gustav Henter presenterar sitt examensarbete: *Mathematical Techniques for Applied Demand Estimation and Profit Maximisation.* Seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se Bråket nr 16 sidan 5.

Fortsättning på nästa sida.

Disputation i matematik

Jonas Hägg disputerar på avhandlingen *Gaussian fluctuations in some determinantal processes* fredagen den 4 maj kl. 14.00 i sal F3, KTH, Lindstedtsvägen 26, b.v. Se Bråket nr 16 sidan 7.

Disputation i matematisk statistik

G. Niklas Norén disputerar på avhandlingen *Statistical methods for knowledge discovery in adverse drug reaction surveillance* måndagen den 7 maj kl. 13.00 i sal 14, hus 5, Matematiska institutionen, SU, Kräftriket. Se Bråket nr 16 sidan 6.

Money, jobs: Se sidorna 10–11.

Seminarier (fortsättning)

Ti 05–08 kl. 10.15. Plurikomplexa seminariet. Tobias Ekholm, Uppsala: *Morse flow trees and Legendrian contact homology.* Rum 306, hus 6, Matematiska institutionen, SU, Kräftriket. Se sidan 5.

Ti 05–08 kl. 14.00 – 15.00. Mittag-Leffler Seminar. Kai Behrend, University of British Columbia, Vancouver: *Derived Lagrangian intersections.* Institut Mittag-Leffler, Auravägen 17, Djursholm. Se sidan 6.

Ti 05–08 kl. 15.30 – 16.30. Mittag-Leffler Seminar. Özgür Ceyhan, Max-Planck-Institut, Bonn: *Towards quantum cohomology of real algebraic varieties.* Institut Mittag-Leffler, Auravägen 17, Djursholm. Se sidan 6.

On 05–09 kl. 10.00 – 11.00. Presentation av examensarbete i matematik. Juha Salomaa: *Finding numerical solutions to the Schwarz-Christoffel Equation.* Handledare: **Jan-Erik Björk.** Sal 21, hus 5, Matematiska institutionen, SU, Kräftriket. Se sidan 6.

On 05–09 kl. 11.00 – 12.00. Kombinatorikseminarium. *(Observera tiden!)* **Aart Blokhuis,** Eindhoven University of Technology: *Do we know all 3-chromatic distance regular graphs?* Seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 7.

On 05–09 kl. 11.15 – 12.15. Presentation av examensarbete i matematik. Anders Österling: *Diffusion equation and Monte Carlo.* Handledare: **Jan-Erik Björk.** Sal 21, hus 5, Matematiska institutionen, SU, Kräftriket. Se sidan 7.

On 05–09 kl. 13.15 – 14.15. Seminarium i analys och dynamiska system. Pavel Kurasov, Lund: *Schrödinger operators on graphs and geometry.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 7.

On 05–09 kl. 16.00 – 17.00. KTH/SU Mathematics Colloquium. Aart Blokhuis, Eindhoven University of Technology: *Polynomials in (finite) geometry and combinatorics.* 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 sidan 5.

On 05–09 kl. 18.00 – 19.00. Offentlig föreläsning på Kungl. Vetenskapsakademien. Professor Bertil Gustafsson, Uppsala universitet och Stanford University: *Teknisk-vetenskapliga beräkningar — den vitala länken mellan teori och experiment.* Beijersalen, Kungl. Vetenskapsakademien, Lilla Frescativägen 4A, Stockholm. Se Bråket nr 16 sidan 7.

To 05–10 kl. 10.00 – 11.00. Mittag-Leffler Seminar. *(Observera tiden!)* **Ziv Ran,** University of California, Riverside: *Lie brackets and deformation theory.* Institut Mittag-Leffler, Auravägen 17, Djursholm. Se sidan 8.

To 05–10 kl. 11.15 – 12.15. Mittag-Leffler Seminar. *(Observera tiden!)* **Hsian-Hua Tseng,** University of British Columbia, Vancouver: *The stack of twisted stable maps to a quotient stack is a quotient stack.* Institut Mittag-Leffler, Auravägen 17, Djursholm. Se sidan 7.

To 05–10 kl. 15.15 – 16.15. AlbaNova and Nordita Colloquium in Physics. Professor Mitchell C. Begelman, Department of Astrophysical and Planetary Sciences, University of Colorado, Boulder, USA: *The first supermassive black holes.* Oskar Kleins auditorium, Roslagstullsbacken 21, AlbaNova universitetscentrum.

Fortsättning på nästa sida.

Seminarier (fortsättning)

Fr 05–11 kl. 11.00 – 12.00. Optimization and Systems Theory Seminar. Professor Alessandro Chiuso, University of Padova, Italy: *An overview of subspace identification methods.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 9.

Fr 05–11 kl. 11.00 – 12.00. Extra Algebraic Geometry Seminar. Adam van Tuyl, Lakehead University, Canada: *The edge ideals of chordal graphs.* Sal D31, KTH, Lindstedtsvägen 17, b.v. Se sidan 8.

Fr 05–11 kl. 12.15 – 13.00. GRU-seminarium i matematik. Anders Forsgren: *Några erfarenheter från undervisning i optimeringslära.* Sammanträdesrum 3424 (innanför pausrummet), Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 4. Se sidan 5.

Fr 05–11 kl. 13.15 – 14.15. Graduate Student Seminar. Douglas Lundholm, Matematik, KTH: *Geometry of simple supersymmetric systems.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se Bråket nr 16 sidan 3.

Observera att Douglas Lundholm skall hålla sitt seminarium den 11 maj. I Bråket nr 15 anges fel dag för seminariet. Seminariet har flyttats för att inte kollidera med Jonas Häggs disputation.

Fr 05–11 kl. 16.00. Göran Gustafsson Lecture in Mathematics. Professor William Fulton, University of Michigan, Ann Arbor: *Equivariant cohomology in algebraic geometry: Lecture I.* Sal D2, KTH, Lindstedtsvägen 5, b.v. Kaffe och te serveras från kl. 15.30. Se sidan 4.

Må 05–14 kl. 13.15. Licentiatseminarium i matematik. Alan Sola försvarar sin licentiatavhandling: *Bergman space methods and integral means spectra of univalent functions.* Opponent: **Professor Alexandru Aleman,** Lunds universitet. Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

Må 05–14 kl. 15.15. Göran Gustafsson Lecture in Mathematics. Professor William Fulton, University of Michigan, Ann Arbor: *Equivariant cohomology in algebraic geometry: Lecture II.* Sal D3, KTH, Lindstedtsvägen 5, b.v. Se sidan 4.

Ti 05–15 kl. 13.15 – 14.00. 2007 Alfvén Lecture in Physics. Gregor Morfill, MPI für Extraterrestriche Physik, Garching: *Complex Plasmas — a new state of matter with unusual properties.* Oskar Kleins auditorium, Roslagstullsbacken 21, AlbaNova universitetscentrum. Se sidorna 9 – 10.

On 05–16 Kombinatorikseminarium. Mark Goresky, IAS Princeton: *Subspace arrangements and equivariant cohomology.* Tid och lokal meddelas senare.

On 05–16 kl. 13.15 – 14.15. Seminarium i analys och dynamiska system. Johan Andersson, SU: *Title to be announced.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

On 05–16 kl. 15.15. Göran Gustafsson Lecture in Mathematics. Professor William Fulton, University of Michigan, Ann Arbor: *Equivariant cohomology in algebraic geometry: Lecture III.* Sal D3, KTH, Lindstedtsvägen 5, b.v. Se sidan 4.

On 05–16 kl. 16.00. KTH/SU Mathematics Colloquium. Professor Claus Scheiderer, Universität Konstanz, Tyskland: *Positive polynomials and sums of squares.* Sal 14, hus 5, Matematiska institutionen, SU, Kräftriket. Se sidan 8.

Fortsättning på nästa sida.

Seminarier (fortsättning)

On 05–16 kl. 19.00. Populärvetenskaplig föreläsning i fysik. Dr Jan Conrad, Fysik, KTH: *Att leta efter mörk materia med ljus: Om att lösa mörka materiens gåta via ljuspartiklar.* Oskar Kleins auditorium, Roslagstullsbacken 21, AlbaNova universitetscentrum. Se sidan 9.

DNA-SEMINARIET UPPSALA-KTH (DYNAMICAL SYSTEMS, NUMBER THEORY, ANALYSIS)

Thomas Jordan:
The dimension of randomly perturbed self-affine sets

Abstract: The Hausdorff dimension of self-similar sets satisfying the open set condition is well-known. However, in the self-affine case the situation, even with the open set condition, is much more complicated. The Hausdorff dimension is not necessarily continuous with parameters for the self-affine set. Over 15 years ago Falconer calculated a formula for the Hausdorff dimension of self-affine sets which holds generically (I will make it clear what this means), assuming the norms of the matrices are smaller than 1/2. We will look at the case of adding random errors to the iterated function system. In this case for suitably chosen random errors, Falconer's formula holds almost surely with no assumption on the norm.

Tid och plats: Måndagen den 7 maj kl. 13.15 – 14.15 i sal 64119, Ångströmlaboratoriet, Uppsala universitet.

GÖRAN GUSTAFSSON LECTURES IN MATHEMATICS

William Fulton:
Equivariant cohomology in algebraic geometry

This year's Göran Gustafsson Lecturer is *William Fulton,* Keeler Professor at the University of Michigan, Ann Arbor. Professor Fulton is the third speaker in the lecture series, after Peter Sarnak in 2005 and Wendelin Werner in 2006. The title of the lecture series is given above.

Abstract for the lecture series: These lectures will discuss the equivariant cohomology of algebraic varieties, concentrating on the case where the group is a torus and the variety is a homogeneous space such as a Grassmannian or flag variety, or the variety is a toric variety. The equivariant viewpoint enriches the classical intersection theory of these algebraic varieties; conversely, the tools of algebraic variety simplify the study of equivariant cohomology. The first lecture will include definitions and basic properties of equivariant cohomology, and it will be aimed at a general mathematical audience. Deeper properties and the examples will be worked out in the other two lectures.

The lecture series is made possible by generous support of the Göran Gustafsson Foundation and is named after its founder.

All interested are welcome!

Tid och plats: **Lecture I:** Fredagen den 11 maj kl. 16.00 i sal D2, KTH, Lindstedtsvägen 5, b.v. Kaffe och te serveras från kl. 15.30. **Lecture II:** Måndagen den 14 maj kl. 15.15 i sal D3, KTH, Lindstedtsvägen 5, b.v. **Lecture III:** Onsdagen den 16 maj kl. 15.15 i sal D3, KTH, Lindstedtsvägen 5, b.v.

PLURIKOMPLEXA SEMINARIET

Tobias Ekholm:
Morse flow trees and Legendrian contact homology

Abstract: Legendrian contact homology is a part of Symplectic Field Theory which associates invariants to symplectic and contact geometric objects via holomorphic curve counts. In the talk we will describe how to reduce the computation of the contact homology of a Legendrian submanifold of a 1-jet space (an infinite-dimensional problem) to a problem of Morse theory (a finite-dimensional problem). We will also give a brief discussion of applications of this reduction within symplectic geometry as well as in classical knot theory.

Tid och plats: Tisdagen den 8 maj kl. 10.15 i rum 306, hus 6, Matematiska institutionen, SU, Kräftriket.

KTH/SU MATHEMATICS COLLOQUIUM

Aart Blokhuis:
Polynomials in (finite) geometry and combinatorics

Abstract: It is illustrated how elementary properties of polynomials can be used to attack extremal problems in finite and Euclidean geometry and in combinatorics. The problems involved are of the following type: Given a set of points (or vectors, or objects) that satisfy some (combinatorial) property, we want to say something about the size or the structure of this set. We associate to this set a polynomial, or a collection of polynomials, and use properties of polynomials to obtain information about the size or structure of our set.

One of the more spectacular examples is a result of Frankl and Wilson from 1981, that led to a counterexample to Borsuk's Conjecture by Kahn and Kalai in 1993.

In finite geometry the so-called Rédei Polynomial has been a very useful tool to obtain results on small blocking sets, and maximal arcs. We will explain how and why it works, and discuss some recent developments.

Tid och plats: Onsdagen den 9 maj kl. 16.00 – 17.00 i 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.

GRU-SEMINARIUM I MATEMATIK

Anders Forsgren:
Några erfarenheter från undervisning i optimeringslära

Sammanfattning: Jag kommer att berätta litet om det undervisningssätt som jag använder i våra högre kurser i optimeringslära. Vi vill att studenterna skall lära sig dels att modellera optimeringsproblem, dels att lösa dem och förstå den underliggande teorin. Vi examinerar modellering i form av projektuppgifter, där studenterna använder ett modelleringsspråk. Metod- och teorikunskaper examineras i form av tentamen. Jag använder även till viss del datorstöd i undervisningen.

Den som anmäler sig till Lars Filipsson (lfn@math.kth.se) senast kvällen före seminariet får en lunchsmörgås.

Tid och plats: Fredagen den 11 maj kl. 12.15 – 13.00 i sammanträdesrum 3424 (innanför pausrummet), Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 4.

MITTAG-LEFFLER SEMINAR

Kai Behrend:
Derived Lagrangian intersections

Abstract: This work grew out of an attempt to categorify Donaldson-Thomas invariants. The intersection of two Lagrangian submanifolds inside a holomorphic symplectic manifold is a "toy model" for a moduli space for Donaldson-Thomas invariants. We construct on such an intersection two structures: a Lie bracket on the derived structure sheaf, and a "virtual de Rham complex". In the oriented case, these two structures combine to a sheaf of Batalin-Vilkovisky algebras on the Lagrangian intersection. The Euler characteristic of the virtual de Rham cohomology of the Lagrangian intersection is equal to the intersection number. This categorifies Donaldson-Thomas invariants in the "toy model" case.

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

MITTAG-LEFFLER SEMINAR

Özgür Ceyhan:
Towards quantum cohomology of real algebraic varieties

Abstract: The small quantum cohomology for real algebraic varieties has been introduced surprisingly early, in 1992, by P. Horava. However, the further developments in the area had to wait for a proper definition of open Gromov-Witten invariants that are known to be Welschinger invariants.

In this talk, the quantum cohomology of real varieties will be revisited by introducing a homological interpretation of Welschinger invariants. The quantum cohomology will be defined as an open-closed homotopy algebra.

Tid och plats: Tisdagen den 8 maj kl. 15.30 – 16.30 vid Institut Mittag-Leffler, Auravägen 17, Djursholm.

PRESENTATION AV EXAMENSARBETE I MATEMATIK

Juha Salomaa:
Finding numerical solutions to the Schwarz-Christoffel Equation

Handledare: **Jan-Erik Björk.**

Abstract: When mapping the upper half plane onto a polygon by the Schwarz-Christoffel equation, one is faced with the problem that the points that are mapped to each corner must be found simultaneously (thus we must seek a numerical solution). In this work we will first find a system of equations, that when solved will give us these points. Further we will work with this system analytically to get rid of singularities, complex factors and other mathematical phenomena that may cause problems when implementing a program. Thus getting a system that contains only bounded real functions and can therefore be numerically estimated with great accuracy. We shall then see how we might go ahead to implement a program that will give us the set of points that are mapped to the corners of a specific polygon. And finally through examples we shall see how this program works.

Tid och plats: Onsdagen den 9 maj kl. 10.00 – 11.00 i sal 21, hus 5, Matematiska institutionen, SU, Kräftriket.

KOMBINATORIKSEMINARIUM

Aart Blokhuis:
Do we know all 3-chromatic distance regular graphs?

Abstract: In the talk we will explain what distance regular graphs are, why they form a beautiful and interesting class of graphs, describe all the (known) examples of the three colourable ones, and try to convince the audience that the list is complete.

This is joint work with Andries Brouwer and Willem Haemers.

Tid och plats: Onsdagen den 9 maj kl. 11.00 – 12.00 i seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

PRESENTATION AV EXAMENSARBETE I MATEMATIK

Anders Österling:
Diffusion equation and Monte Carlo

Handledare: **Jan-Erik Björk.**

Abstract: Introducing the Brownian motion in the way of Einstein and Wiener, we find the connection between a Wiener Process and the Heat Diffusion PDE. We solve the PDE analytically for some boundary conditions and then use the connection to the Wiener Process to solve more complex BVP's using Monte Carlo simulations in Matlab.

Tid och plats: Onsdagen den 9 maj kl. 11.15 – 12.15 i sal 21, hus 5, Matematiska institutionen, SU, Kräftriket.

SEMINARIUM I ANALYS OCH DYNAMISKA SYSTEM

Pavel Kurasov:
Schrödinger operators on graphs and geometry

Abstract: Schrödinger operators on finite compact metric graphs are considered so far with standard boundary conditions at the vertices. It is proven that the asymptotics of the eigenvalues determine the Euler characteristic of the underlying metric graph in the case of essentially bounded potentials. Possible extensions of this result to more general boundary conditions and potentials as well as to difference operators are discussed.

Tid och plats: Onsdagen den 9 maj kl. 13.15 – 14.15 i seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

MITTAG-LEFFLER SEMINAR

Hsian-Hua Tseng:
The stack of twisted stable maps to a quotient stack is a quotient stack

Abstract: In this talk I will explain a proof of the result mentioned in the title, that the stack of twisted stable maps to a quotient Deligne-Mumford stack is itself a quotient stack. The main tool in the proof is the Quot functor construction for Deligne-Mumford stacks due to Olsson and Starr.

Tid och plats: Torsdagen den 10 maj kl. 11.15 – 12.15 vid Institut Mittag-Leffler, Auravägen 17, Djursholm.

MITTAG-LEFFLER SEMINAR

Ziv Ran:
Lie brackets and deformation theory

Abstract: Our purpose is to sketch a general approach to deformations of algebraic schemes in characteristic 0 and their morphisms, based on appropriate Lie-theoretic structures (differential graded and simplicial Lie algebras, Lie pairs, etc.). The first step is to associate to an affine scheme a DGLA that is essentially the dual of its cotangent complex. A similar, graded construction works for projective schemes. For general schemes, we 'glue' affine pieces into a simplicial object somewhat like the Cech complex of a sheaf of Lie algebras.

The second step is to associate to a simplicial Lie algebra a comultiplicative complex that we call the Jacobi-Bernoulli complex. Its differentials involve higher-order brackets 'twisted' by Bernoulli numbers. The cohomology of this complex is essentially the deformation ring of the algebra (or of the scheme that gave rise to it).

We will try to emphasize the elementary and concrete nature of these methods and their applications.

Tid och plats: Torsdagen den 10 maj kl. 10.00 – 11.00 vid Institut Mittag-Leffler, Auravägen 17, Djursholm.

EXTRA ALGEBRAIC GEOMETRY SEMINAR

Adam van Tuyl:
The edge ideals of chordal graphs

Abstract: Given a simple (no loops or multiple edges) graph G, one can associate to G a quadratic square-free monomial ideal $I(G)$ in the polynomial ring $R = k[x_1, \ldots, x_n]$. It is then natural to ask how the properties of G are reflected in $I(G)$ and vice versa. In this talk I will discuss some of my recent projects on this question. In particular, I will talk about the graded Betti numbers of the edge ideal and the sequentially Cohen-Macaulayness of $R/I(G)$. I will highlight the case that G is a chordal (or triangulated) graph; in this situation the edge ideal has nice properties, e.g., the graded Betti numbers can be computed recursively. I will also discuss my recent work on developing a hypergraph analogue of chordal graphs to study square-free monomial ideals.

Tid och plats: Fredagen den 11 maj kl. 11.00 – 12.00 i sal D31, KTH, Lindstedtsvägen 17, b.v.

KTH/SU MATHEMATICS COLLOQUIUM

Claus Scheiderer:
Positive polynomials and sums of squares

Abstract: Since Minkowski and Hilbert, the polarity between positive polynomials and sums of squares has occupied generations of mathematicians. The interest in this matter has even increased in recent years, due to new insights on the one hand and to applications in optimization on the other. In my talk I will both describe the historic roots of the problem and speak about selected recent developments.

Tid och plats: Onsdagen den 16 maj kl. 16.00 i sal 14, hus 5, Matematiska institutionen, SU, Kräftriket.

OPTIMIZATION AND SYSTEMS THEORY SEMINAR

Alessandro Chiuso:
An overview of subspace identification methods

Abstract: In this talk I shall briefly review the most significant steps in the development of subspace algorithms, starting from the seminal papers in the late eighties, through the most widely known procedures (CCA, N4SID, MOESP), ending with most recent algorithms which have allowed subspace identification to be applied with closed loop-data. This shall be done keeping contact with stochastic realization theory. I shall give particular emphasis to a recent body of results on the asymptotic statistical properties of subspace methods which have also allowed to perform comparison between different methods. Some perspectives on future developments and open aspects will be given.

Tid och plats: Fredagen den 11 maj kl. 11.00 – 12.00 i seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

POPULÄRVETENSKAPLIG FÖRELÄSNING I FYSIK

Jan Conrad:
Att leta efter mörk materia med ljus:
Om att lösa mörka materiens gåta via ljuspartiklar

Sammanfattning: Experimentella resultat visar nu att en stor andel av materien i universum är osynlig. Frågan vad denna materia består av är en av de största olösta gåtorna i modern fysik. Svenska fysiker deltar i ett projekt, som bland många andra viktiga frågeställningar kan ge nyckeln till lösningen. En satellit med en komplicerad detektor, kallad GLAST, skall skjutas upp och förhoppningsvis mäta spår av den mystiska materien, eftersom den sönderfaller till högenergetiska ljuspartiklar. Föredraget kommer att beskriva projektet och hur detta hänger ihop med den mörka materiens mysterium.

Tid och plats: Onsdagen den 16 maj kl. 19.00 i Oskar Kleins auditorium, Roslagstullsbacken 21, AlbaNova universitetscentrum.

2007 ALFVÉN LECTURE IN PHYSICS

Gregor Morfill:
Complex Plasmas — a new state of matter
with unusual properties

Abstract: "Complex plasmas" (consisting of electrons, ions and charged microparticles) represent a new and quite unusual state of soft matter — a state that until its discovery was believed impossible to exist. In this talk, first the main properties of this new system are summarized. Then some specific results of dedicated experiments will be presented, including new insights into the fundamental stability principles of condensed matter, the onset of cooperative phenomena in strongly coupled systems, the pathways to equilibrium in interacting flowing plasmas, the first observation of the onset of turbulence at the individual particle (kinetic) level and critical phenomena (phase transitions) viewed also at the kinetic level. Due to the comparatively large mass of the microparticles (several 10's of billion atomic masses), all dynamical processes are slowed down so that they can be viewed in real time. The large particle mass also implies that some key experiments have to be performed in space under microgravity conditions.

(Continued on the next page.)

The talk finishes with an outlook into future topics of interest in this young and expanding field.

Tid och plats: Tisdagen den 15 maj kl. 13.15 – 14.00 i Oskar Kleins auditorium, Roslagstullsbacken 21, AlbaNova universitetscentrum.

MONEY, JOBS

Columnist: Eric Emtander, Department of Mathematics, SU. E-mail: erice@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/~erice/mj.html.
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.
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

Jobs to apply for

11. Statistiska institutionen vid SU söker doktorander i statistik. Tillträde den 1 september eller enligt överenskommelse. Sista ansökningsdag är den 25 maj. Web-info: http://www.su.se/pub/jsp/polopoly.jsp?d=858&a=18918.

Old information

Money to apply for

12. Letterstedtska föreningen utdelar anslag för att befordra gemenskapen mellan de fem nordiska länderna på industrins, vetenskapens och konstens områden. Ansökan om anslag skall insändas före den 15 september. Web-info: http://www.letterstedtska.org/.
13. Sweden-Japan Foundation utlyser stipendier för studier, forskning samt examensarbete och praktik på högskolenivå i Japan. Ansökningsdagar är den 1 mars och den 1 oktober. Web-info: http://www.swejap.a.se/.
14. Wenner-Gren Stiftelserna delar ut stipendier för att möjliggöra för svenska disputerade forskare att verka vid utländsk vetenskaplig institution. Sista ansökningsdag är den 1 oktober. Stipendierna beviljas för en tid av lägst 1 och högst 12 månader med möjlighet till förlängning till högst 24 månader. Web-info: http://www.swgc.org/index.aspx?pageID=14.

Jobs to apply for

15. École Normale Supérieure, Paris, utlyser ett 9 månader långt postdoctoral fellowship i matematik med början tidigast den 1 oktober. Sista ansökningsdag är den 15 maj. Web-info: http://www.dma.ens.fr/international/ENIGMA.html.

(Continued on the next page.)

16. KTH ledigförklarar ett antal anställningar som doktorand i matematik. Sista ansökningsdag är den 11 maj. Web-info: http://www.math.kth.se/utlysning.tjanst/utlysn.doktorand.html.

17. School of Mathematical Sciences, University College Dublin, utlyser en postdoktjänst inom projektet "Potential Theory and Quadrature Domains". I utlysningen står: "Quadrature domains are domains in Euclidean space over which the integrals of harmonic functions can be computed by integration with respect to a measure that has compact support. They arise naturally in many areas of the mathematical sciences and are the subject of significant contemporary research activity." För vidare information, kontakta Björn Gustafsson, gbjorn@kth.se, vid KTH eller Stephen Gardiner (se nedan). Ansökan innehållande CV, publikationslista, beskrivning av matematiska intressen samt kontaktinformation och två angivna referenspersoner skickas till: Professor Stephen J. Gardiner, UCD School of Mathematical Sciences, Belfield, Dublin 4, Ireland. Fax: +353-1-716 11 96. E-post: stephen.gardiner@ucd.ie. Web-info: http://maths.ucd.ie/~sjg/.