



# BRÅKET



## *Information om seminarier och högre undervisning i matematiska ämnen i Stockholmsområdet*

NR 1

FREDAGEN DEN 14 JANUARI 2005

### BRÅKET

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

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Institutionen för matematik  
KTH  
100 44 Stockholm

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Sista manustid för nästa nummer:  
Torsdagen den 20 januari  
kl. 13.00.

### Högre undervisning

Ett schema för högre kurser och seminarier i matematik vid KTH och Stockholms universitet under vårterminen 2005 finns på sidorna 8–9.

**Money, jobs:** Se sidorna 10–11.

### SEMINARIER

Fr 01–14 kl. 11.00–12.00. **Optimization and Systems Theory Seminar.** Mathias Stolpe, Technical University of Denmark, Lyngby: *Design of planar articulated mechanisms using branch and bound.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 3.

Ti 01–18 kl. 10.15. **Seminarium i teoretisk datalogi.** Ivan Damgård: *Share conversion, pseudorandom secret-sharing and applications to secure distributed computing.* Rum 1537, Nada, KTH, Lindstedtsvägen 3, plan 5. Se sidan 3.

Ti 01–18 kl. 13.15. **Licentiatseminarium i matematik.** Erik Melin presenterar sin licentiatavhandling: *Digitization in Khalimsky spaces.* Granskare: **Professor Christian Ronse**, Université Louis Pasteur, Strasbourg. Sal MIC 2247, Matematiska institutionen, Polacksbacken, Uppsala universitet.

**Fortsättning på nästa sida.**

### Kurser

*Stefan Arnborg:* Data Mining. Se sidan 10.

*Jesper Carlström:* Beslutsteori och sannolikhetsteorins grundvalar (studiecirkel). Se sidan 5.

*Anders Forsgren:* Numerical linear programming. Se sidan 4.

*Jens Hoppe:* Elementär differentialgeometri. Se sidan 10.

*Johan Håstad:* Teoretikerns verktygslåda. Se sidan 5.

*Clas Löfwall:* Cyclic homology. Se sidan 6.

*Serguei Shimorin:* An invitation to spectral function theory. Se sidan 2.

*Richard Stanley:* Topics in Enumerative Combinatorics. Se sidan 6.

*Anders Szepessy:* Partial differential equations. Se sidan 7.

*Joanna Tyrcha:* Probabilistic properties of deterministic systems. Se sidan 7.

### Seminarier (fortsättning)

- On 01–19 kl. 13.15. Seminarium i digital geometri och matematisk morfologi.** Professor **Christian Ronse**, Université Louis Pasteur, Strasbourg: *Geometrical and morphological image processing in Strasbourg (current research topics of Christian Ronse and students)*. Sal MIC 2145, Matematiska institutionen, Polacksbacken, Uppsala universitet.
- On 01–19 kl. 16.00–17.00. Kollokvium. Dennis Stanton**, University of Minnesota, Minneapolis: *Roots of unity in enumeration*. Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 4. Kaffe serveras i pauserummet på plan 4 kl. 15.30.
- To 01–20 kl. 13.15–13.45. Presentation av examensarbete i matematik. Karin O’Neill:** *Lieb-Thirring inequalities for higher order Jacobi matrices*. Seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.
- To 01–20 kl. 14.00–15.00. Mittag-Leffler Seminar. Dennis Stanton**, University of Minnesota, Minneapolis: *Examples of the cyclic sieving phenomenon*. Institut Mittag-Leffler, Auravägen 17, Djursholm.
- To 01–20 kl. 15.30–16.30. Mittag-Leffler Seminar. Petter Brändén**, Chalmers tekniska högskola, Göteborg: *On the Neggers-Stanley conjecture and related topics*. Institut Mittag-Leffler, Auravägen 17, Djursholm.
- On 01–26 kl. 13.15–14.15. Seminarium i analys och dynamiska system. Dmitry Beliaev**, KTH: *Title to be announced*. Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.
- Fr 01–28 kl. 11.00–12.00. Optimization and Systems Theory Seminar. Anders Blomqvist**, Optimeringslära och systemteori, KTH: *A well-posed approach to ARMA estimation and Hinf control synthesis*. Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 5.

## GRADUATE COURSE IN MATHEMATICS

### An invitation to spectral function theory

*Lecturer:* **Serguei Shimorin**, Department of Mathematics, KTH.

The course will be given in January – March 2005, with 2 two-hour lectures per week. The first lecture will be on Tuesday, January 18, at 15.15 in seminar room 3721, Department of Mathematics, KTH, Lindstedtsvägen 25, floor 7.

*Description of the course:* The theory of Hardy classes and their operators is now a classical chapter of complex analysis, harmonic analysis, and operator theory. Its applications include such classical topics as Fourier series, rational approximation, moment problems, as well as more recent developments in scattering theory, signal processing, and optimal control. In our course, we shall deal with basic concepts and tools of the theory: invariant subspaces of the shift operator, Riesz-Nevanlinna canonical factorization, Hankel and Toeplitz operators, interpolation problems, etc. The aim is to give “a taste”, a background of the theory and to discuss directions of applications.

*Literature:* N. K. NIKOLSKII, *Operators, Functions and Systems: An Easy Reading. Vol. I: Hardy, Hankel and Toeplitz*. There is also a volume II of this book, but it is not necessary for the course.

## OPTIMIZATION AND SYSTEMS THEORY SEMINAR

**Mathias Stolpe:**

### **Design of planar articulated mechanisms using branch and bound**

*Abstract:* In this talk we present an optimization model and a solution method for optimal design of two-dimensional mechanical mechanisms. The mechanism design problem is modelled as a nonconvex mixed integer program which allows the optimal topology and geometry of the mechanism to be determined simultaneously. The underlying mechanical analysis model is based on a truss (pin jointed assembly of straight bars) representation allowing for large displacements. For mechanisms undergoing large displacement elastic stability is of major concern. We derive conditions, modelled by nonlinear matrix inequalities, that guarantee that a stable mechanism is found. The feasible set of the design problem is described by nonlinear constraints as well as nonlinear matrix inequalities.

To solve the mechanism design problem a branch and bound method based on convex relaxations is developed. The relaxations are strengthened by adding valid inequalities to the feasible set. Encouraging computational results, which will be presented, indicate that the branch and bound method can reliably solve mechanism design problems of realistic size to global optimality.

The talk is based on joint work with Atsushi Kawamoto.

*Tid och plats:* Fredagen den 14 januari kl. 11.00–12.00 i seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

## SEMINARIUM I TEORETISK DATALOGI

**Ivan Damgård:**

### **Share conversion, pseudorandom secret-sharing and applications to secure distributed computing**

*Abstract:* We present a method for converting shares of a secret into shares of the same secret in a different secret-sharing scheme using only local computation and no communication between players.

We show how this can be combined with any pseudorandom function to create, from initially distributed randomness, any number of Shamir secret-sharings of (pseudo)random values without communication. We apply this technique to obtain efficient non-interactive protocols for secure computation of low-degree polynomials, which in turn give rise to other applications in secure computation and threshold cryptography. For instance, we can make the Cramer-Shoup threshold cryptosystem by Canetti and Goldwasser fully non-interactive, or assuming initially distributed randomness, we can compute any function securely in two rounds of communication.

The solutions are practical only for a relatively small number of players. However, in our main applications the number of players is typically small, and furthermore it can be argued that no solution that makes a black-box use of a pseudorandom function can be more efficient.

This is joint work with Ronald Cramer and Yuval Ishai.

*Tid och plats:* Tisdagen den 18 januari kl. 10.15 i rum 1537, Nada, KTH, Lindstedtsvägen 3, plan 5.

## KOLLOKVIUM

**Dennis Stanton: Roots of unity in enumeration**

*Abstract:* Let  $X$  be a finite set. Suppose that each  $x$  in  $X$  corresponds to a monomial  $q^{c(x)}$ . The generating function  $X(q)$  for  $X$  is the sum of all of these monomials, and is a polynomial in  $q$ . Clearly  $X(1) = |X|$ , but there are important examples in which  $X(-1)$  is the size of a specified set related to  $X$ . In this talk, I will give a generalization of this phenomenon to roots of unity  $w$ , where  $X(w)$  counts the number of fixed points of a cyclic group which acts on  $X$ . An equivalent representation theory reformulation is given. Examples of the phenomenon will be given for integer partitions, Coxeter groups, and finite fields. Conjectured Bruhat-like cell decompositions in finite fields and new results on modular invariant theory will be given.

*Tid och plats:* Onsdagen den 19 januari kl. 16.00–17.00 i seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Kaffe serveras i pausrummet på plan 4 kl. 15.30.

**GRADUATE COURSE  
IN OPTIMIZATION AND SYSTEMS THEORY**

**Numerical linear programming, 5B5850, 5 p**

*Instructor:* **Anders Forsgren**, Optimization and Systems Theory, KTH.

The course will be given during the spring term 2005. The first lecture will be on Tuesday, January 18, at 10.15–12.00 in seminar room 3721, Department of Mathematics, KTH, Lindstedtsvägen 25, floor 7.

*Course information:* <http://www.math.kth.se/opt Syst/research/5B5850/>.

This graduate course is primarily intended for graduate students in optimization and systems theory, or other graduate students with a good background in optimization. The course deals with theory and algorithms for linear programming problems (LP problems).

From the 1940's until about twenty years ago the simplex method, developed by Dantzig, was the only practically used method for solving LP problems. Khachian had in the late 1970's presented the polynomial ellipsoid method, but it had not been successful in practice.

When Karmarkar presented his interior method in 1984, all this changed. This method was polynomial and also claimed to be superior to the simplex method in practice.

Karmarkar's method lead to an "explosion" within the area of linear programming. Gill et al. soon showed that Karmarkar's method was equivalent to a logarithmic barrier method, and the development of new interior methods was rapid.

This "competition" between the simplex method and interior methods has lead to significant improvement in both types of method over the last decade. The purpose of this course is to reflect this development. Some more advanced aspects of the simplex method are included, e.g., steepest edge, partial pricing, and of the interior-point methods, e.g., primal-dual methods, affine-scaling methods, predictor-corrector methods. In particular, we try to understand how the different methods work.

Suitable prerequisites are the courses 5B1814 Applied mathematical programming — linear problems, and 2D1250 Applied Numerical Methods II, or similar knowledge.

Welcome!  
Anders Forsgren

## OPTIMIZATION AND SYSTEMS THEORY SEMINAR

Anders Blomqvist:

### A well-posed approach to ARMA estimation and Hinf control synthesis

*Abstract:* The theory of analytic interpolation with degree constraint provides paradigms for ARMA estimation and Hinf control synthesis which are fundamentally different from the conventional approaches. The main merit of the paradigms is the inherent well-posedness of the underlying mathematical problems. This yields an alternative coordinatization, that is a smooth parameterization, of the transfer functions in terms of the problem data and possibly a set of tuning parameters. In this talk we shall present some recent developments of the paradigms and illustrate them with some examples.

The talk is based on the thesis *A Convex Optimization Approach to Complexity Constrained Analytic Interpolation with Applications to ARMA Estimation and Robust Control*, which will be defended on February 7, 2005. (See the next issue of Bråket.)

*Tid och plats:* Fredagen den 28 januari kl. 11.00–12.00 i seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

## DOKTORANDKURS

### Teoretikerns verktygslåda

*Föreläsare:* **Johan Håstad**, Nada, KTH.

Vi kommer att gå igenom lite verktyg användbara inom teoretisk datalogi. Närmare innehåll kommer att bestämmas på första mötet, men ett förslag finns på <http://www.nada.kth.se/~johanh/verktyg/info.html>.

Det första mötet äger rum torsdagen den 20 januari kl. 10.00 i rum 1537, Nada, KTH, Lindstedtsvägen 3, plan 5. De som inte kan komma då men eventuellt vill följa kursen kan kontakta mig på e-post [johanh@nada.kth.se](mailto:johanh@nada.kth.se).

Välkomna!

Johan Håstad

## STUDIECIRKEL

### Beslutsteori och sannolikhetssteorins grundvalar

Vi startar en studiecirkel i grunderna i beslutsteori och i de filosofiska aspekterna på tillämpning av sannolikhetssteori. En typisk frågeställning är: "Varför och hur kan man (bör man?) fatta beslut med hjälp av sannolikhetsberäkningar?" En annan är om sannolikhetsbör förstås som ett subjektivt eller objektiva mått. Vi kommer också att ta del av tillämpningar som exempelvis beslut om kärnavfallsförvaring. Hittills deltar doktorander i matematik och matematisk statistik, men vem som helst är välkommen. Den doktorand som avtalar så med sin handledare och studierektor kan erhålla poäng efter examination av Per-Erik Malmnäs (filosofi). Vi håller till på Matematiska institutionen, SU. Om du är intresserad, kontakta Jesper Carlström, [jesper@math.su.se](mailto:jesper@math.su.se).

## GRADUATE COURSE IN MATHEMATICS

### Cyclic homology

*Lecturer:* **Clas Löfwall**, Department of Mathematics, Stockholm University.

*Time:* The course will be given during the spring term 2005 on Mondays at 15.15–17.00 in room 306, Department of Mathematics, Stockholm University, house 6, Kräftriket. The first meeting is on January 24. There will be about 15 meetings totally until the beginning of June.

We will begin with Hochschild homology and study the homology (and cohomology) in small dimensions, which includes the study of derivations, Kähler differentials, algebra extensions and deformations. Cyclic homology will then be defined in three different ways. By a double complex (Loday-Quillen), by a quotient of the Hochschild complex (Connes) and by means of a non-commutative model (Feigin-Tsygan). Hochschild homology and cyclic homology are related through a long exact sequence by Connes. This sequence splits into short exact sequences (which are naturally split) in the case of a non-negatively graded connected algebra over a field of characteristic zero. This means that in this case Hochschild homology decomposes into two pieces of cyclic homology.

In the commutative case there is an algebra structure on Hochschild (and cyclic) homology. This may be obtained by means of the shuffle product on the standard complex or by means of a model by Sullivan-Vigué. Finally, we will make some explicit computations of cyclic homology. We will study free (commutative and non-commutative) algebras and algebras of global dimension 2 (they are non-commutative analogues of complete intersections). Using Koszul duality this will give us explicit formulas for the cyclic homology of polynomial rings modulo “many” generic quadratic forms.

Exercises will be given during the course. To get 5 credits, one may either hand in some of the exercises or write an essay about some given subject.

There will be written lecture notes which will cover most of the material. Other sources are LODAY, *Cyclic Homology*, chapters 1 and 2, and WEIBEL, *An Introduction to Homological Algebra*, chapter 9 (the latter contains however several mistakes, which we will see in the exercises).

Welcome!  
Clas Löfwall

## GRADUATE COURSE IN MATHEMATICS

### Topics in Enumerative Combinatorics, 5B5252

*Instructor:* **Professor Richard Stanley**.

*Time:* The course will be given on Wednesdays at 10.15–12.00, beginning on January 26, 2005, in seminar room 3721, Department of Mathematics, KTH, Lindstedtsvägen 25, floor 7.

The course will cover topics in enumerative combinatorics of current interest. Possible topics, depending on interest and background, include chains and antichains in posets, rational generating functions, the transfer-matrix method,  $P$ -partitions, Ehrhart polynomials, the exponential formula, trees, Lagrange inversion, algebraic and  $D$ -finite generating functions, lattice paths, noncommutative generating functions, tilings, tableaux, and unimodality.

*Prerequisites:* Familiarity with basic enumeration (on the level of chapters 1–3 of STANLEY: *Enumerative Combinatorics*, Volume 1), or willingness to catch up on this material by self-study in parallel with the course. Familiarity with basic algebra and geometry.

## GRADUATE COURSE IN MATHEMATICAL STATISTICS

### Probabilistic properties of deterministic systems, 5 p

*Lecturer:* **Joanna Tyrcha**, Division of Mathematical Statistics, Stockholm University.

*Course contents:* The course will present the main concepts and applications of nonlinear dynamics. From many examples, as well as the formal development of probability and statistics, we will come to associate the appearance of densities with the description of large systems containing inherent elements of uncertainty. We will begin with a one-dimensional, finite-difference equation and the concept of stability and continue with the concept of chaos, noise versus chaos and studying chaos with densities. Further we talk about one-dimensional and two-dimensional differential equations, as well as different kind of noise and stochastic resonance. We will discuss many biological examples and present selected mathematical models to emphasize main concepts, for example: chaos in periodically stimulated heart cells, Gompertz growth of tumours, action potentials in nerve cells and some dynamical diseases as anemia, leukemia (a dynamical disease is defined as a disease that occurs in an intact physiological control system operating in a range of control parameters that leads to abnormal dynamics).

*Course literature:* A. BEUTER, L. GLASS, M. C. MACKEY, M. S. TITCOMBE (Editors), *Nonlinear Dynamics in Physiology and Medicine*. Springer-Verlag, New York, 2003, ISBN 0-387-00449-1. This book will be supplemented by material from other books and sources in form of lecture notes.

*Examination:* This will be in the form of home tasks.

*Time:* The course will start on Wednesday, January 26, at 9.15–11.00 in room 306, Department of Mathematics, Stockholm University, house 6, Kräftriket. The extent of the course is 12 double lectures 9.15–11.00 on Wednesdays from January 26 until April 27, 2005.

Welcome!

Joanna Tyrcha

## GRADUATE COURSE IN MATHEMATICS

### Partial differential equations

*Lecturer:* **Anders Szepessy**, Department of Mathematics, KTH.

I will teach a graduate course on partial differential equations, 5 credits, based on the book by L. C. EVAN, *Partial Differential Equations*. The course will include basic representation formulas for linear and some nonlinear PDE, basic theory for linear PDE and some methods for nonlinear PDE. This means chapters 1 to 4 and parts of chapters 5 to 11.

Evan's book is modern and broad with a careful choice of methods that guide the reader to the state of the art in mathematical research on PDE. The purpose of the course is to achieve this goal.

The first lecture will be given on Thursday, January 27, at 10.15–12.00 in room 3733, Department of Mathematics, KTH, Lindstedtsvägen 25, floor 7. The lectures will continue once a week until June 2005.

You can find more information on [http://www.math.kth.se/~szepessy/pde\\_dokt.html](http://www.math.kth.se/~szepessy/pde_dokt.html).

Welcome!

Anders Szepessy

**Schema för högre kurser och seminarier i matematik  
vid KTH och Stockholms universitet under vårterminen 2005**

**Fördjupningskurser**

**Topologi**, 5B1464, MA414, 5 p.

*Lärare:* W. Chacholski.

*Tid och plats:* Måndagar kl. 10.15–12.00 i KTH:3733. Kursstart den 24 januari.

**Galoisteori**, MA418, 5 p.

*Lärare:* Merkulov.

*Tid och plats:* Fredagar kl. 10.15–12.00 i SU:306. Kursstart den 28 januari.

**Elementär differentialgeometri**, 5B1473, MA423, 5 p.

*Lärare:* J. Hoppe.

*Tid och plats:* Onsdagar kl. 15.15–17.00 och torsdagar kl. 13.15–15.00 i KTH:3733. Kursstart den 26 januari. Se sidan 10.

**Elementär algebraisk geometri**, MA431, 5 p.

*Lärare:* Fröberg.

*Tid och plats:* Tisdagar kl. 15.15–17.00 i SU:306. Kursstart den 25 januari.

**Seminariekurs II: Icke linjära vågekvationer**, 5B1457.

*Lärare:* H. Ringström.

*Tid och plats:* Kursstart fredagen den 28 januari (tid har ej meddelats). Tider för senare föreläsningar bestäms vid det första mötet.

**Doktorandkurser**

**Cyklisk homologi.**

*Lärare:* Löfwall.

*Tid och plats:* Måndagar kl. 15.15–17.00 i SU:306. Kursstart den 24 januari. Se sidan 6.

**Koszulalgebror.**

*Lärare:* Merkulov.

*Tid och plats:* Torsdagar kl. 10.15–12.00 i SU:306.

**An invitation to spectral function theory**, 5B5167.

*Lärare:* S. Shimorin.

*Tid och plats:* Kursstart tisdagen den 18 januari kl. 15.15 i KTH:3721. Kursen ges med två föreläsningar per vecka. Se sidan 2.

**Partiella differentialekvationer**, 5B5169.

*Lärare:* A. Szepessy.

*Tid och plats:* Torsdagar kl. 10.15–12.00 i KTH:3733. Kursstart den 27 januari. Se sidan 7.

**Topics in Enumerative Combinatorics**, 5B5252.

*Lärare:* R. Stanley.

*Tid och plats:* Onsdagar kl. 10.15–12.00 i KTH:3721. Kursstart den 26 januari. Se sidan 6.

**Mathematical theory of option pricing**, 5B5159.

*Lärare:* H. Shahgholian.

*Tid och plats:* Fredagar kl. 13.15–15.00 i KTH:3733. Kursstart den 11 februari.

**Talteori**, 5B5401.

*Lärare:* D. Laksov.

*Tid och plats:* Måndagar kl. 15.15–17.00 i KTH:3721. Kursstart den 24 januari.

(Fortsättning på nästa sida.)



**Seminarier****Algebra- och geometriseminarier.***Seminarieledare:* Ekedahl, Fröberg, Roos.*Tid och plats:* Onsdagar kl. 13.15–15.00. Varannan vecka i SU:306. Varannan vecka i KTH:3733.**Seminarier i analys och dynamiska system.***Seminarieledare:* Benedicks, Boman, Carleson, Hedenmalm, Laptev, Smirnov.*Tid och plats:* Onsdagar kl. 13.15–14.15 i KTH:3721.**Logikseminarier.***Seminarieledare:* Martin-Löf (SU), Stoltenberg-Hansen (Uppsala).*Tid och plats:* Onsdagar kl. 10.00–11.45 i SU:16. Vissa veckor i Uppsala.**Plurikomplexa seminariet.***Seminarieledare:* Filipsson, Jöricke, Kiselman, Passare.*Tid och plats:* Varannan tisdag kl. 10.15–15.00. Var fjärde vecka i SU:306. Var fjärde vecka i Uppsala.**Matematik med didaktisk inriktning.***Seminarieledare:* Bøgvad, Fröberg, Gottlieb, Löfwall.*Tid och plats:* Vissa onsdagar kl. 10.15–12.00 i SU:306.**Doktorandseminarier.***Seminarieledare:* Meddelas senare.*Tid och plats:* Meddelas senare.**Kollokvier.***Seminarieledare:* P. Kurlberg (KTH), B. Shapiro (SU).*Tid och plats:* Vissa onsdagar kl. 16.00–17.00. Plats anges vid varje tillfälle.**DNA-seminarier (Dynamics, Number theory, and Analysis).***Seminarieledare:* A. Karlsson (KTH), A. Strömbergsson (Uppsala).*Tid och plats:* Seminariet är gemensamt mellan KTH och Uppsala universitet. Det hålls varannan vecka, alternerande mellan KTH och Uppsala.**Seminarier i analys och dess tillämpningar.***Seminarieledare:* H. Shahgholian.*Tid och plats:* Meddelas senare.**Kombinatorikseminarier.***Seminarieledare:* A. Björner.*Tid och plats:* Vissa onsdagar kl. 10.15–12.00 i KTH:3733.

Om du undrar över någon kurs som ej ges under läsåret, kan du kontakta huvudläraren (fördjupningskurser), din handledare eller studierektor för forskarutbildningen. Eventuellt kan någon form av studiecirkel anordnas om tillräckligt intresse finns.

För kurserna vid Stockholms universitet gäller: Undervisningen börjar tidigast under vecka 3 (17–21 januari). Möjlighet till tentamen på fördjupningskurser, som inte går under terminen, ges i augusti om tentamensanmälan inlämnas senast den 1 juli 2005.

**Adresser:** KTH:3721: Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

KTH:3733: Seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

SU:16: Sal 16, hus 5, Matematiska institutionen, SU, Kräftriket.

SU:306: Rum 306, hus 6, Matematiska institutionen, SU, Kräftriket.

**DOKTORANDKURS****Data Mining, 2D5342**

*Föreläsare:* **Stefan Arnborg**, Nada, KTH.

Jag kommer att ge en doktorandkurs i Data Mining, speciellt Bayesianska och fördelningsberoende metoder. Information finns på min hemsida, <http://www.nada.kth.se/~stefan/>. Den första föreläsningen äger rum fredagen den 21 januari 2005 kl. 15.15 i rum 1537, Nada, KTH, Lindstedtsvägen 3, plan 5.

Välkomna!  
Stefan Arnborg

**FÖRDJUPNINGSKURS I MATEMATIK****Elementär differentialgeometri, 5B1473**

*Lecturer:* **Jens Hoppe**, Department of Mathematics, KTH.

The course will be given in January – March 2005, with 2 two-hour lectures per week. The first lecture will be on Wednesday, January 26, at 15.15 in seminar room 3733, Department of Mathematics, KTH, Lindstedtsvägen 25, floor 7.

I will try to combine elements of the classical, seemingly “elementary” (but truly inexhaustible), theory of curves and surfaces embedded in three-dimensional (Euclidean) space with an introduction to the more abstract “modern” notions in differential geometry.

Welcome!  
Jens Hoppe

**MONEY, JOBS**

*Columnist:* Hans Rullgård, Department of Mathematics, SU. E-mail: [hansr@math.su.se](mailto:hansr@math.su.se).

Info = information. This will be given and repeated until obsolete. Rely on other sources as well.

BBKTH = Bulletin Board at the Department of Mathematics, KTH.

BBSU = Bulletin Board at the Department of Mathematics, SU.

The following information, with links, is also available at <http://www.math.su.se/~hansr/mj.html>.

Unless stated otherwise, a given date is the last date (e.g. for applications), and the year is 2005. 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://www.su.se/forskning/stipendier/databas.php3>.
6. Umeå site for information on funds: [http://www.umu.se/umu/aktuellt/stipendier\\_fond\\_anslag.html](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>.

(Continued on the next page.)

### New information

#### *Money, to apply for*

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

#### *Jobs, to apply for*

12. Matematiska institutionen vid Luleå tekniska universitet söker en forskarassistent i matematisk statistik med inriktning industriell statistik, 28 februari. Info: Kerstin Vännman, 0920-49 11 27, e-post kerstin.vannman@ltu.se, Thomas Gunnarsson, 0920-49 10 61, e-post thomas.gunnarsson@sm.luth.se. Web-info: [http://hogtrycket.adm.ltu.se/lediga\\_jobb.asp?annonsnr=380&SQL=100](http://hogtrycket.adm.ltu.se/lediga_jobb.asp?annonsnr=380&SQL=100).
13. Institutionen för ekonomi och samhälle vid Högskolan Dalarna söker en universitetslektor i statistik, 17 februari. Info: Johan Bring, 070-311 22 21, e-post johan.bring@statisticon.se, Jan Åkerstedt, 023-77 86 53, e-post jak@du.se. Web-info: [http://www.du.se/templates/NewsPage\\_\\_\\_\\_\\_3590.aspx](http://www.du.se/templates/NewsPage_____3590.aspx).
14. Matematikcentrum vid Lunds universitet söker en doktorand i matematik med inriktning mot lineära partiella differentialekvationer, 21 januari. Info: Nils Dencker, 046-222 44 62, e-post Nils.Dencker@math.lu.se. Web-info: <http://personserver.pers.lu.se/document/6487.pdf> och <http://www.matematik.lu.se/JobsInLund/>.
15. Matematikcentrum vid Lunds universitet söker en doktorand i matematik med inriktning mot icke-lineära partiella differentialekvationer, 21 januari. Info: Tomas Claesson, 046-222 85 57, e-post Tomas.Claesson@math.lu.se. Web-info: <http://personserver.pers.lu.se/document/6486.pdf> och <http://www.matematik.lu.se/JobsInLund/>.
16. Matematiska vetenskaper vid Chalmers tekniska högskola i Göteborg utlyser doktorand-tjänster inom matematik och matematisk statistik, 1 mars. Info: För tjänster i matematik, Laura Fainsilber, 031-772 35 60, e-post laura@math.chalmers.se, Hjalmar Rosengren, 031-772 53 58, e-post hjalmar@math.chalmers.se. För tjänster i matematisk statistik, Olle Häggström, 031-772 53 11, e-post olleh@math.chalmers.se, Torgny Lindvall, 031-772 35 74, e-post lindvall@math.chalmers.se. För biostatistik, Nanny Wermuth, 031-772 35 79, e-post wermuth@math.chalmers.se. Web-info: [http://chalmersnyheter.chalmers.se/chalmers03/svensk/ext\\_ledigatjansterarticle.jsp?article=4337](http://chalmersnyheter.chalmers.se/chalmers03/svensk/ext_ledigatjansterarticle.jsp?article=4337).

### Old information

#### *Money, to apply for*

17. Fulbright Grants for Visiting Lecturers and Research Scholars kan sökas för forskning och undervisning i USA 2005/06. Info: 08-534 818 85. Web-info: <http://www.usemb.se/Fulbright/> och [http://www.usemb.se/Fulbright/grants2005\\_6.pdf](http://www.usemb.se/Fulbright/grants2005_6.pdf).
  18. Institut Mittag-Leffler utlyser stipendier för verksamhetsåret 2005/06. Sista ansökningsdag är 31 januari. Info och anmälningsblankett, som kan kopieras, finns på Matematiska institutionens anslagstavla, SU.
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