



BRÅKET



Information om seminarier och högre undervisning i matematiska ämnen i Stockholmsområdet

NR 3

FREDAGEN DEN 23 JANUARI 2009

BRÅKET

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

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100 44 Stockholm

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Sista manustid för nästa nummer:
Torsdagen den 29 januari
kl. 13.00.

SEMINARIER

Må 01–26 kl. 15.15. Seminarium i finansiell matematik.
Adam Andersson, Chalmers tekniska högskola, Göteborg: *On weak differentiability of quadratic forward-backward SDEs with application to cross hedging*. Seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se Bråket nr 2 sidan 6.

Ti 01–27 kl. 13.15. Plurikomplexa seminariet. Andreas Axelsson, SU: An introduction to the Hodge-Dirac operator $d + \delta$. Rum 306, hus 6, Matematiska institutionen, SU, Kräftriket. Se sidan 5.

Ti 01–27 kl. 14.00–15.00. Institut Mittag-Leffler Seminar. Remco van der Hofstad, Eindhoven University of Technology: First passage percolation on random graphs. Institut Mittag-Leffler, Auravägen 17, Djursholm. Se sidan 6.

Ti 01–27 kl. 15.30–16.30. Institut Mittag-Leffler Seminar. Vincent Beffara, UMPA-ENS, Lyon: Isotropic embeddings of planar lattices. Institut Mittag-Leffler, Auravägen 17, Djursholm. Se sidan 9.

Fortsättning på nästa sida.

Kurser

Alexander Engström, Timo Koski och Lars Svensson: Graduate reading course in algebraic statistics. Se sidan 3.

Ari Laptev: Spectral Theory of Partial Differential Operators. Se sidan 5.

Anders Szepessy, m.fl.: Mathematical and computational methods from micro to macro scales. Se sidan 4.

Disputation i mekanik

Ola Lögberg skall disputerar vid KTH på avhandlingen *Turbulent boundary layer separation and control* fredagen den 23 januari kl. 10.00. Se sidan 3.

Disputation i matematik

Eric Nordenstam skall disputerar vid KTH på avhandlingen *Interlaced particles in tilings and random matrices* fredagen den 6 februari kl. 13.00. Se sidan 8.

Money, jobs: Se sidorna 9–10.

Seminarier (fortsättning)

- On 01–28 kl. 10.00–11.45. Logikseminariet Stockholm-Uppsala.** *How is Tarski semantics to be understood? Diskussion med deltagande av Dag Prawitz och Per Martin-Löf.* Sal 16, hus 5, Matematiska institutionen, SU, Kräftriket.
- On 01–28 kl. 10.15–12.00. Kombinatorikseminarium.** Per Austrin, KTH: *Approximability and unique games.* Seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 7.
- On 01–28 kl. 13.00. Seminarium i statistik.** Danute Krapavickaite, Institute of Mathematics and Informatics, Vilnius: *Censored regression model-based semi-parametric estimation of a finite population total in social surveys.* Sal B705, Statistiska institutionen, SU, Universitetsvägen 10B, plan 7, Frescati. Se sidan 6.
- On 01–28 kl. 13.15–14.15. Seminarium i analys och dynamiska system.** Richard Miles, KTH: *Orbit growth for dynamical group actions.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 5.
- On 01–28 kl. 13.15–15.00. Algebra and Geometry Seminar.** Gunnar Fløystad, Universitetet i Bergen: *The colourful Helly theorem and colourful resolutions of ideals.* Seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 7.
- On 01–28 kl. 14.30–15.30. KCSE (KTH Computational Science and Engineering Centre) Seminar.** Torbjörn Granlund, KTH CSC: *GMP — current and future algorithms and tricks.* Rum RB15, Roslagstullsbacken 15, AlbaNova universitetscentrum. Se sidan 4.
- To 01–29 kl. 14.00–15.00. Institut Mittag-Leffler Seminar.** Jonathon Peterson, University of Wisconsin, Madison: *Quenched limits for one-dimensional, transient, RWRE.* Institut Mittag-Leffler, Auravägen 17, Djursholm. Se sidan 9.
- To 01–29 kl. 15.30–16.30. Institut Mittag-Leffler Seminar.** Taral Guldahl Seierstad, Universitetet i Oslo: *The differential equation method and random graphs.* Institut Mittag-Leffler, Auravägen 17, Djursholm. Se sidan 7.
- Fr 01–30 kl. 11.00. Optimization and Systems Theory Seminar.** Angelo Cenedese, University of Padova, Italy: *Shape analysis and deformation control.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se Bråket nr 2 sidan 7.
- Fr 01–30 kl. 14.00. Seminar at the School of Electrical Engineering, KTH.** A. D. Ioannidis, Lunds Tekniska Högskola: *Waveguides in E/M theory: the general linear medium in arbitrary geometry.* Seminarierummet, Teknikringen 33, 1 tr., KTH. Se Bråket nr 2 sidan 4.
- On 02–04 kl. 11.00–12.00. KTH/Nordita/SU Seminar in Theoretical Physics.** (*Observera lokalen!*) Paolo Di Vecchia, Nordita: *Strings in magnetic fields in extra-dimensions and the Standard Model.* Sal FB51, Roslagstullsbacken 21, AlbaNova universitetscentrum. Se sidan 8.
- On 02–04 kl. 13.15. Algebra and Geometry Seminar.** Jerome Scherer: *Title to be announced.* Rum 306, hus 6, Matematiska institutionen, SU, Kräftriket.
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DISPUTATION I MEKANIK

Ola Lögdborg

skall disputeras på avhandlingen

Turbulent boundary layer separation and control

fredagen den 23 januari 2009 kl. 10.00 i sal F3, KTH, Lindstedtsvägen 26, b.v. Till opponent har utsetts *professor Guido Buresti*, Dipartimento di Ingegneria Aerospaziale, Università di Pisa, Italien.

Abstract of the thesis

Boundary layer separation is an unwanted phenomenon in most technical applications, as for instance on airplane wings, ground vehicles and in internal flow systems. If separation occurs, it causes loss of lift, higher drag and energy losses. It is thus essential to develop methods to eliminate or delay separation.

In the present experimental work streamwise vortices are introduced in turbulent boundary layers to transport higher momentum fluid towards the wall. This enables the boundary layer to stay attached at larger pressure gradients. First the adverse pressure gradient (APG) separation bubbles that are to be eliminated are studied. It is shown that, independent of pressure gradient, the mean velocity defect profiles are self-similar when the scaling proposed by Zagarola and Smits is applied to the data. Then vortex pairs and arrays of vortices of different initial strength are studied in zero pressure gradient (ZPG). Vane-type vortex generators (VGs) are used to generate counter-rotating vortex pairs, and it is shown that the vortex core trajectories scale with the VG height h and the spanwise spacing of the blades. Also the streamwise evolution of the turbulent quantities scale with h . As the vortices are convected downstream, they seem to move towards an equidistant state, where the distance from the vortex centres to the wall is half the spanwise distance between two vortices. Yawing the VGs up to 20° do not change the generated circulation of a VG pair. After the ZPG measurements, the VGs were applied in the APG mentioned above. It is shown that the circulation needed to eliminate separation is nearly independent of the pressure gradient and that the streamwise position of the VG array relative to the separated region is not critical to the control effect. In a similar APG jet vortex generators (VGJs) are shown to be as effective as the passive VGs. The ratio VR of jet velocity and test section inlet velocity is varied, and a control effectiveness optimum is found for $VR = 5$. At 40° yaw the VGJs have only lost approximately 20 % of the control effect. For pulsed VGJs the pulsing frequency, the duty cycle and VR were varied. It was shown that to achieve maximum control effect the injected mass flow rate should be as large as possible, within an optimal range of jet VR s. For a given injected mass flow rate, the important parameter was shown to be the injection time t_1 . A non-dimensional injection time is defined as $t_1^+ = t_1 U_{jet}/d$, where d is the jet orifice diameter. Here, the optimal t_1^+ was 100 – 200.

GRADUATE READING COURSE IN ALGEBRAIC STATISTICS

Nästa föreläsning i denna kurs (se Bråket 2008 nr 38, sidan 13) äger rum fredagen den 23 januari kl. 15.15 – 17.00 i seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Alexander Engström talar.

Välkomna!

Alexander Engström

Timo Koski

Lars Svensson

GRADUATE COURSE

Mathematical and computational methods from micro to macro scales

The course presents computational methods from Schrödinger's equation for nuclei-electron systems over molecular dynamics to continuum partial differential equations, using a unified mathematical method to derive and explain the coupling between the models on the different scales.

The *Schrödinger equation*, which accurately models the nuclei-electron system without unknown parameters, is the basis for solid state physics and computational chemistry. An important issue is its high computational complexity, e.g. already for a water molecule it means to solve a partial differential equation in 39 dimensions. Computational approximations are therefore needed, and the goal of the course is to understand the accuracy and numerical complexity of important coarse-grained approximations.

The complexity is reduced by classical approximation of the nuclei, using *surface-hopping*, *Ehrenfest* or the *Born-Oppenheimer dynamics*. To computationally solve the quantum problem for the electrons, the *Hartree-Fock* and *Kohn-Sham density functional theory* is important and leads to an *ab initio molecular dynamics model*. The *ab initio* molecular dynamics can be simplified by *empirical potentials*. Thermal fluctuations in an ensemble at constant temperature introduces stochastics into the dynamics which leads to the *Langevin molecular dynamics*, or variants thereof. On long time scales and the high friction limit, this dynamics can be described without the velocities by the *Smoluchowski equation*. The next step in the coarse-graining process is to derive partial differential equations — for the mass, momentum and energy of a *continuum fluid* — from Langevin or Smoluchowski molecular dynamics, which determines the otherwise unspecified pressure, viscosity and heat conductivity; we present an example of such a coarse-graining process in the case of modelling a solid-liquid melt.

Organizer: Anders Szepessy, szepessy@kth.se.

Teachers: Anders Szepessy, Raul Tempone, Mikhail Dzugutov, Pavel Korzhavyi, and Zilvinas Rinkevicius.

First lecture: Tuesday, January 27, at 10.15–12.00 in room 4523, KTH CSC, Lindstedtsvägen 5, floor 5.

Information: <http://www.nada.kth.se/~szepessy/micro-macro.html>.

Welcome!

Anders Szepessy

KCSE SEMINAR

Torbjörn Granlund:

GMP — current and future algorithms and tricks

Abstract: We will make a short introduction to the GNU MP bignum library, and describe the envelope of what it does. We will focus on the methods that are used within GMP to make it outperform other bignum libraries, from algebra to pipeline exploration.

Tid och plats: Onsdagen den 28 januari kl. 14.30–15.30 i rum RB15, Roslagstullsbacken 15, AlbaNova universitetscentrum.

PLURIKOMPLEXA SEMINARIET

Andreas Axelsson:

An introduction to the Hodge-Dirac operator $d + \delta$

Abstract: This talk is meant to give a short elementary introduction to the non-commutative extension of one-variable complex analysis, to real Euclidean n -dimensional space. Here complex algebra is generalized to non-commutative Clifford algebra, and the Cauchy-Riemann equations generalize to the Hodge-Dirac equation. We shall see how the Cauchy reproducing formula generalizes to $\mathbb{R}^n$ and how monogenic fields, i.e. the higher-dimensional analytic functions, relate to conformal/Möbius mappings.

For those interested in calculus with exterior and Clifford algebra, we mention that the speaker plans to give a graduate course on the topic in the fall of 2009.

Tid och plats: Tisdagen den 27 januari kl. 13.15 i rum 306, hus 6, Matematiska institutionen, SU, Kräftriket.

Anmärkning: Detta seminarium var tidigare annonserat till den 2 december 2008, men fick då ställas in på grund av sjukdom.

SEMINARIUM I ANALYS OCH DYNAMISKA SYSTEM

Richard Miles:

Orbit growth for dynamical group actions

Abstract: In his thesis, G. Margulis proved a dynamical analogue of the prime number theorem. Later R. Sharp considered Mertens' theorem from number theory in a similar light. These results are easily stated in terms of orbit counts for single transformations. This talk will deal with the problem of measuring orbit growth for more general dynamical group actions. A useful picture of some of the issues involved is given by considering a full nilpotent group shift. The problem for other systems is much more complicated, even for actions of Z^2 . Some progress for algebraic systems will be presented together with a specific estimation problem, impeding a complete solution in this setting.

Tid och plats: Onsdagen den 28 januari kl. 13.15 – 14.15 i seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

GRADUATE COURSE IN MATHEMATICS

Ari Laptev:

Spectral Theory of Partial Differential Operators

Syllabus: Hardy and Sobolev inequalities. Spectrum of Dirichlet and Neumann Laplacians. Polya conjecture and Li and Yau inequalities. Trace formulae, non-linear equations, solitons. Discrete and continuous spectrum of Schrödinger operators. Stability of matter. Bounds on the maximal negative ionisation of atoms. Lieb-Thirring inequalities and their applications. Spectrum of non-self-adjoint operators. Spectral properties of differential operators on graphs.

First lecture: Friday, January 30, at 9.15 – 12.00 in seminar room 3733, Department of Mathematics, KTH, Lindstedtsvägen 25, floor 7.

Welcome!

Ari Laptev

INSTITUT MITTAG-LEFFLER SEMINAR

Remco van der Hofstad:

First passage percolation on random graphs

Abstract: We study the structure of minimal-weight paths in the configuration model with i.i.d. degrees with a fixed degree distribution. Here, each edge receives an independent exponential weight, and we consider hopcount, which equals the number of edges of the minimal-weight path between two uniformly chosen vertices, and the weight of this minimal path. When the degrees obey a power law with degree power-law exponent τ , then, whenever $\tau > 2$, we see that the hopcount obeys a central limit theorem with asymptotically equal mean and variance proportional to $\log(n)$, where n is the size of the graph.

A similar result was proved to hold on the complete graph, the difference being that the proportionality constant on the complete graph is equal to 1, whereas for the configuration model it is greater than 1 when $\tau > 3$ and in $(0, 1)$ when $\tau \in (2, 3)$. This gives a remarkably universal picture for first passage percolation on random graphs. Peculiarly, when $\tau \in (1, 2)$, for which the mean degree is infinite, the hopcount weakly converges to a rather explicit distribution in terms of the Poisson-Dirichlet distribution.

These results should be contrasted to the results when instead of i.i.d. exponential weights, each edge has a constant weight, so that the hopcount is equal to the graph distance on the graph. In the latter case, when $\tau \in (2, 3)$, the hopcount is asymptotically proportional to $\log \log(n)$, with uniformly bounded fluctuations. Thus, the addition of random edge weights has a marked effect on the structure of minimal-weight paths. We hope that these results shed light on the hopcount in Internet, which also obeys an asymptotic central limit theorem with roughly equal mean and variance.

Tid och plats: Tisdagen den 27 januari kl. 14.00 – 15.00 vid Institut Mittag-Leffler, Auravägen 17, Djursholm.

SEMINARIUM I STATISTIK

Danute Krapavickaite:

Censored regression model-based semi-parametric estimation of a finite population total in social surveys

Summary: The estimators of the population total for the non-negative study variable having many zero values are studied. Such kind of the variable can be met in the survey of farms — an area under some kind of crop that is not grown up very often in the farm, in the survey of enterprises — investment of an enterprise for environmental protection that can be highly positive or equal to zero; in the social survey — hours of work of a married woman, number of extra hours worked by an individual, expenditure of a household on some kind of goods, and so on.

The usual design-based estimator of the total is inefficient because of the high population variance of the study variable, and special estimation methods are needed.

Some earlier works on this topic will be overviewed, some existing methods applied, and some new estimators suggested. Censored regression or tobit model, semi-parametric models will be used for this. Simulation results will show how efficient the semi-parametric model-assisted estimator of the total is.

Tid och plats: Onsdagen den 28 januari kl. 13.00 i sal B705, Statistiska institutionen, SU, Universitetsvägen 10B, plan 7, Frescati.

KOMBINATORIKSEMINARIUM

Per Austrin:

Approximability and unique games

Abstract: Many fundamental combinatorial properties, such as e.g. clique number, chromatic number, or maximum cut of a graph, are NP-hard to compute exactly. But what happens if the problems are slightly relaxed, and one instead asks for approximate computations of these properties? It turns out that different problems behave very differently. For instance, the clique number and chromatic number turn out to be NP-hard to approximate even within an almost linear factor, whereas there is a trivial algorithm which finds a factor two approximation for the maximum cut.

In recent years, the so-called Unique Games Conjecture has become an important tool for obtaining strong hardness of approximation results, and there are now many problems for which the best possible approximation ratio is known, assuming this conjecture. We discuss some of these consequences and, time permitting, give a high-level overview of how they are proved.

No prior knowledge of approximation algorithms is needed.

Tid och plats: Onsdagen den 28 januari kl. 10.15 – 12.00 i seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

ALGEBRA AND GEOMETRY SEMINAR

Gunnar Fløystad:

The colourful Helly theorem and colourful resolutions of ideals

Abstract: We demonstrate that the topological Helly theorem and the algebraic Auslander-Buchsbaum may be viewed as different versions of the same phenomenon. Using this correspondence we show how the colourful Helly theorem of I. Barany and its generalizations by G. Kalai and R. Meshulam translate to the algebraic side. Our main results are algebraic generalizations of these translations, which in particular give a syzygetic version of Helly's theorem.

Tid och plats: Onsdagen den 28 januari kl. 13.15 – 15.00 i seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

INSTITUT MITTAG-LEFFLER SEMINAR

Taral Guldahl Seierstad:

The differential equation method and random graphs

Abstract: Wormald's differential equation method is frequently used in the study of random discrete structures. Provided that certain conditions are satisfied, the method can be used to show that discrete random variables converge in probability to the solutions of certain differential equations. We show that if more conditions are satisfied, then the random variables have asymptotically a Gaussian distribution. This implies that central limit theorems can be proved for several parameters on well-behaved random graph processes, such as the number of trees of a given size or the size of the giant component.

Tid och plats: Torsdagen den 29 januari kl. 15.30 – 16.30 vid Institut Mittag-Leffler, Auravägen 17, Djursholm.

KTH/NORDITA/SU SEMINAR IN THEORETICAL PHYSICS

Paolo Di Vecchia:

Strings in magnetic fields in extra-dimensions and the Standard Model

Abstract: I will start discussing the ideas presently used for connecting string theory to particle phenomenology. They are based on the existence in string theory of non-perturbative objects called D branes. I will give a brief description of them. Then, in order to be able to describe chiral matter as leptons and quarks, I will introduce the magnetized D branes that have the property of having magnetic fields living on the compact extra dimensions. I will then determine the spectrum of open strings connected to D branes having different magnetizations, and I will show that this spectrum reduces, in the field theory limit, to that of an electron in an external magnetic field. The degeneracy of the Landau levels corresponds to the different families of quarks and leptons. Finally, I will discuss the Kaluza-Klein reduction of the low-energy effective action living on a stack of D9 branes, and I will show how to compute the parameters of the low-energy Lagrangian as the Kähler metrics and Yukawa couplings that enter in the determination of the masses of quarks and leptons.

Tid och plats: Onsdagen den 4 februari kl. 11.00–12.00 i sal FB51, Roslagstullsbacken 21, AlbaNova universitetscentrum.

DISPUTATION I MATEMATIK

Eric Nordenstam

skall disputeras på avhandlingen

Interlaced particles in tilings and random matrices

fredagen den 6 februari 2009 kl. 13.00 i sal F3, KTH, Lindstedtsvägen 26, b.v. Till opponent har utsetts *professor Pierre van Moerbeke*.

Abstract of the thesis

This thesis consists of three articles all related in some way to eigenvalues of random matrices and their principal minors and also to tilings of various planar regions with dominoes or rhombuses.

Consider an $N \times N$ matrix $H_N = [h_{ij}]_{i,j=1}^N$ from the Gaussian unitary ensemble (GUE). Denote its principal minors (submatrices in the upper left corner) by $H_n = [h_{ij}]_{i,j=1}^n$ for $n = 1, \dots, N$. We show in paper A that all the $N(N+1)/2$ eigenvalues of $H_1, \dots, H_N$ form a determinantal process on N copies of the real line $\mathbb{R}$. We also show that this distribution arises as a scaling limit in tilings of an Aztec diamond with dominoes. We discuss a corresponding result for rhombus tilings of a hexagon which was later proved by Okounkov and Reshtikhin. We give a new proof of that statement in the introduction to this thesis.

In paper B we perform a similar analysis for the Anti-symmetric Gaussian unitary ensemble (A-GUE). We show that the positive eigenvalues of an $N \times N$ A-GUE matrix and its principal minors form a determinantal process on N copies of the positive real line $\mathbb{R}^+$. We also show that this distribution of all these eigenvalues appears as a scaling limit of tilings of half a hexagon with rhombuses.

In paper C we study the shuffling algorithm for tilings of an Aztec diamond. This leads to the study of an interacting set of interlaced particles that evolve in time. We conjecture that the diffusion limit of this process is a process studied by Warren and establish some results in this direction.

INSTITUT MITTAG-LEFFLER SEMINAR

Vincent Beffara:

Isotropic embeddings of planar lattices

Abstract: In recent years, huge progress has been made in the understanding of critical two-dimensional models of statistical physics, and especially about their scaling limits (through the use of SLE processes). However, one question remains widely open, and that is the reason for universality, i.e. the belief that similar systems on different lattices, even though they have different critical points, nevertheless converge to the same scaling limit as the lattice mesh goes to 0. It seems that a key question along the way to understanding it is, given the combinatorics of a lattice, how to embed it in the plane in order to obtain a conformally invariant scaling limit — and a surprising fact is that the “right” embedding depends not only on the lattice but also on the model. I will present the few results I was recently able to obtain in this direction.

Tid och plats: Tisdagen den 27 januari kl. 15.30 – 16.30 vid Institut Mittag-Leffler, Auravägen 17, Djursholm.

INSTITUT MITTAG-LEFFLER SEMINAR

Jonathon Peterson:

Quenched limits for one-dimensional, transient, RWRE

Abstract: Kesten, Kozlov, and Spitzer (1975) classified the limiting distributions for one-dimensional, transient, RWRE under the annealed measure (averaging over all environments). In particular, they showed that the limiting distributions are not always Gaussian, but are related to the stable laws. It is a natural question to consider if these limiting distributions hold given a random environment (i.e., under the quenched measure). Somewhat surprisingly, when the annealed limiting distribution is non-Gaussian, there does not exist a quenched limiting distribution. In fact, for almost any environment, we can find two (environment dependent) sequences where the limiting distributions of the random walk are different.

Tid och plats: Torsdagen den 29 januari kl. 14.00 – 15.00 vid Institut Mittag-Leffler, Auravägen 17, Djursholm.

MONEY, JOBS

Columnist: Johannes Lundqvist, Department of Mathematics, Stockholm University.
E-mail: johannes@math.su.se.

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

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

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

The following information, with links, is also available at <http://www2.math.su.se/~johannes/mj.html>.

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

(Continued on the next page.)

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. Kungl. Vetenskapsakademien utlyser 12 forskartjänster (Research Fellow Posts) inom bl.a. matematik, finansierade av Knut och Alice Wallenbergs Stiftelse. Tjänsterna är på fem år och kan sökas av forskare som disputerat år 1999 eller senare. Sista ansökningsdag är den 9 februari. Web-info: http://www.kva.se/KVA_Root/swe/awards/scholarships/application.asp.
12. KTH söker en lektor i optimeringslära och systemteori. Sista ansökningsdag är den 6 februari. Web-info: <http://www.kth.se/aktuellt/tjanster/2/ShowAdd.aspx?ID=145237>.

Old information

Money to apply for

13. Vetenskapsrådet utlyser bidrag till anställning som postdok i Sverige. Bidraget skall ge möjlighet för forskare med svensk doktorsexamen eller med utländsk examen som bedöms motsvara doktorsexamen att vistas vid svensk högskola eller svenskt forskningsinstitut. Sista ansökningsdag är den 26 februari. Web-info: <http://www.vr.se/huvudmeny/sokabidrag/vetenskapsradetsutlysningar/utlysningvy.4.aad30e310abcb9735780004381.html?resourceId=-1873&languageId=1>.
14. Vetenskapsrådet utlyser postdoktorsstipendium. Stipendierna skall ge möjlighet för forskare med svensk doktorsexamen eller examen från EUI (European University Institute) att vistas vid utländskt universitet eller forskningsinstitut. Sista ansökningsdag är den 26 februari. Web-info: <http://www.vr.se/huvudmeny/sokabidrag/vetenskapsradetsutlysningar/utlysningvy.4.aad30e310abcb9735780004381.html?resourceId=-1935&languageId=1>.
15. Svenska matematikersamfundet utlyser resestipendier (Knut och Alice Wallenbergs stiftelses resefond och Mats Esséns minnesfond) avsedda för forskare som ej ännu avlagt doktorsexamen. Wallenbergsstipendierna (högst 3000 kr/person) är till för att utnyttjas som delfinansiering för konferensresor och kortare utlandsvistelser. Essénstipendierna (högst 6000 kr/person) är i första hand avsedda för deltagande i sommarskolor och liknande aktiviteter. Sista ansökningsdag är den 31 mars. Web-info: <http://www.maths.lth.se/matematiklu/personal/dencker/resebidrag.html>.
16. Stiftelsen Anna-Greta och Holger Crafoords fond utlyser bidrag och anslag för att främja grundforskning inom matematik och vissa naturvetenskaper. Såväl enskilda som institutioner kan beviljas medel för bland annat vetenskaplig verksamhet, vetenskapliga konferenser och inbjudan av utländska gästforskare. Bidrag och anslag delas ut företrädesvis till unga forskare. Sista ansökningsdag är den 1 mars. Web-info: http://www.kva.se/KVA_Root/swe/awards/scholarships/detail_scholarships.asp?grantsId=11&br=ns&ver=6up.
17. Stiftelsen G. S. Magnusons fond utdelar stipendier och anslag inom ämnesområdet matematik för följande ändamål: Stöd till doktorander. Stöd till den som önskar ytterligare meritera sig efter doktorsexamen. Stöd till svenska forskare för forskning hemma eller i utlandet samt för inbjudan av utländska gästforskare. Bidrag för att kvarhålla forskare inom landet. Stöd till den som inom sin verksamhet utnyttjar matematik och som önskar bidrag till vetenskaplig förkovran inom ämnet. Sista ansökningsdag är den 2 februari. Web-info: http://www.kva.se/KVA_Root/swe/awards/scholarships/detail_scholarships.asp?grantsId=45.

Jobs to apply for

18. Lunds Tekniska Högskola söker doktorander i matematisk statistik. Sista ansökningsdag är den 13 februari. Web-info: <http://www3.lu.se/info/lediga/admin/document/PA2009-18.pdf>.