



BRÅKET



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

NR 5

FREDAGEN DEN 7 FEBRUARI 2003

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 13 februari
kl. 13.00.

Disputation i optimerings- lära och systemteori

Göran Sporre disputerar på av-
handlingen *On some properties of
interior methods for optimization*
måndagen den 17 februari 2003 kl.
10.00 i Kollegiesalen, Administra-
tionsbyggnaden, KTH, Valhalla-
vägen 79. Se Bråket nr 3 sidan 6.

Money, jobs: Se sidorna 9–10.

SEMINARIER

Må 02–10 kl. 13.00. Seminarium i teoretisk datalogi.
Viggo Kann och Jonas Sjöbergh, Nada, KTH:
*Språkteknikforskning på Nada eller Sagan om de
fem oeniga taggarna*. Rum 1537, Nada, KTH,
Lindstedtsvägen 3, plan 5. Se Bråket nr 4 sidan 5.

Må 02–10 kl. 13.15. Seminar in Analysis and its Appli-
cations. Vladimir Tkachev: *Lemniscates and
Hamburger moments*. Seminarierum 3733, Institu-
tionen för matematik, KTH, Lindstedtsvägen 25,
plan 7. Se Bråket nr 4 sidan 9.

Må 02–10 kl. 15.15–16.00. Seminarium i finansiell
matematik. Martin Lundvall presenterar sitt
examensarbete: *On the Risk Management and
Portfolio Analysis of Hedge Funds*. Seminarierum
3733, Institutionen för matematik, KTH, Lind-
stedtsvägen 25, plan 7. Se Bråket nr 4 sidan 8.

Ti 02–11 kl. 13.15. Presentation av examensarbete i
tillämpad matematik. Elin Broström: *Investi-
gation of the Electromagnetic Field Distribution in
an Undermoded Reverberation Chamber*. Semina-
rierum 3733, Institutionen för matematik, KTH,
Lindstedtsvägen 25, plan 7. Se sidan 6.

Ti 02–11 kl. 14.00–15.00. Mittag-Leffler Seminar.
Joseph A. Ball, Virginia Tech University, USA:
*Robust control of systems with noncommutative
structured uncertainty, formal power series in non-
commuting indeterminates, and systems with evo-
lution along a free semigroup*. Institut Mittag-
Leffler, Auravägen 17, Djursholm. Se sidan 3.

Fortsättning på nästa sida.

Teaching, Learning, and Popularization of Mathematics

Svenska Matematikersamfundet anordnar ett möte med denna
titel lördagen den 15 februari 2003 kl. 9.15–17.00 i sal E1,
KTH, Lindstedtsvägen 3, b.v. Se Bråket nr 4 sidan 3.

Seminarier (fortsättning)

- Ti 02–11 kl. 15.30–16.30. Mittag-Leffler Seminar. M. A. Kaashoek**, Vrije Universiteit, Amsterdam, The Netherlands: *Commutant lifting and metric constrained interpolation*. Institut Mittag-Leffler, Auravägen 17, Djursholm. Se sidan 4.
- On 02–12 kl. 10.00–11.00. Presentation av examensarbete i matematik. Bengt Hedlund**: *Observationer i relativitetsteorin*. Sal 35, hus 5, Matematiska institutionen, SU, Kräftriket. Se sidan 5.
- On 02–12 kl. 10.15–12.00. Kombinatorikseminarium. Anders Björner**: *Rum av evolutionära träd*. Seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 6.
- On 02–12 kl. 13.15–14.15. Seminarium i analys och dynamiska system. Per Sjölin**: *A theorem of Antonov on convergence of Fourier series*. Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se Bråket nr 4 sidan 7.
- On 02–12 kl. 13.15–15.00. Algebra- och geometriseminarium. Matthieu Romagny**: *Compact moduli for curves with level structure*. Seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 6.
- On 02–12 kl. 14.00. Celsiusföreläsning i Uppsala. Jean Serra**, École des Mines de Paris: *Mathematical morphology and its uses*. Sal X, Universitetshuset i Uppsala. Se sidan 7.
- On 02–12 kl. 15.15. Presentation av examensarbete i matematisk statistik. Marija Milicevic**: *Long-term Health Insurance*. Rum 306 (Cramérrummet), hus 6, Matematiska institutionen, SU, Kräftriket. Se sidan 4.
- To 02–13 kl. 10.15. Seminarium i Uppsala. Jean Serra**, École des Mines de Paris: *Segmentation and connections*. Rum 1111, Matematiska institutionen, Polacksbacken, Uppsala universitet. Se sidan 8.
- To 02–13 kl. 13.15. Presentation av examensarbete i matematik. Patrik Hellgren**: *Attractors of non-invertible maps*. Seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.
- To 02–13 kl. 14.00–15.00. Mittag-Leffler Seminar. Ruth F. Curtain**, University of Groningen, The Netherlands: *Reciprocals of well-posed linear systems*. Institut Mittag-Leffler, Auravägen 17, Djursholm. Se sidan 5.
- To 02–13 kl. 15.30–16.30. Mittag-Leffler Seminar. Paul A. Fuhrmann**, Ben-Gurion University of the Negev, Beer Sheva, Israel: *Observer theory*. Institut Mittag-Leffler, Auravägen 17, Djursholm. Se sidan 4.
- Fr 02–14 kl. 10.15. Seminarium i Uppsala. Jean Serra**, École des Mines de Paris: *Colour image processing*. Centre for Image Analysis, Lagerhyddsvägen 17, Uppsala. Se sidorna 8–9.
- Må 02–17 kl. 13.15–15.00. Seminar in Analysis and its Applications. Julius Borcea**: *Locating the critical points of complex polynomials: on and around Sendov's conjecture*. Seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 3.
- Fr 02–21 kl. 11.00–12.00. Optimization and Systems Theory Seminar. Mathias Stolpe**, Optimeringslära och systemteori, KTH: *Title to be announced*. Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.
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MITTAG-LEFFLER SEMINAR

Joseph A. Ball: Robust control of systems with noncommutative structured uncertainty, formal power series in noncommuting indeterminates, and systems with evolution along a free semigroup

Abstract: We introduce the notion of an input-state-output linear system with evolution along a free semigroup. Application of a d -variable noncommutative Z -transform to the system equations leads to the transfer function for the system, which is a formal power series in d noncommuting formal indeterminates. Motivation for the study of such formal power series comes from the modelling of structured uncertainty in a nominal plant in robust control theory. Unlike the situation for commutative, multidimensional systems, much of the classical system theory ideas (controllability, observability, state-space reduction and minimality) goes through for these noncommutative multidimensional systems. In particular, tests for controllability/observability give rise to controllability/observability matrices identical to those introduced by Beck-Doyle (IEEE Trans. Auto. Contr., vol. 44 (no. 10) 1999, pp. 1802–1813) in connection with the study of minimality for linear fractional representation of plant model uncertainty. When the system is dissipative (i.e., trajectories satisfy a certain energy-balance inequality as in the sense of Willems), the transfer function can be viewed as a function in the traditional sense, with argument equal to a d -tuple of noncommuting contraction operators. Such functions also arise in operator theory as the characteristic function (in the sense of Sz.-Nagy and Foias) for a row contraction (a d -tuple of operators $(T_1, \dots, T_d)$ on a Hilbert space H with associated block-operator row matrix forming a contraction operator from d copies of H into H), and serve as the complete unitary invariant for such objects (which also satisfy a “completely nonunitary” minimality property).

This talk reports on joint work with Tanit Malakorn of Virginia Tech.

Tid och plats: Tisdagen den 11 februari kl. 14.00–15.00 vid Institut Mittag-Leffler, Auravägen 17, Djursholm.

SEMINAR IN ANALYSIS AND ITS APPLICATIONS

Julius Borcea: Locating the critical points of complex polynomials: on and around Sendov’s conjecture

Abstract: First advanced in 1962, the Sendov (or Sendov-Ilieff) conjecture has become one of the main challenges in the analytic theory of polynomials. The conjecture states simply that if p is a complex polynomial of degree at least 2, having all its zeros in the closed unit disk $\bar{D}$, then $a + \bar{D}$ contains at least one zero of p' for any $a \in p^{-1}(0)$.

I will first review the results known so far on Sendov’s conjecture. In particular, I will describe some of the ideas that were used for proving the conjecture for polynomials of degree at most 8, and that it is in fact asymptotically true. I will then discuss some related conjectures about extremal and maximal polynomials as well as possible generalizations of Sendov’s conjecture. If time allows, I will also talk about a recently claimed “proof” of Sendov’s conjecture.

Tid och plats: Måndagen den 17 februari kl. 13.15–15.00 i seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

MITTAG-LEFFLER SEMINAR

M. A. Kaashoek:

Commutant lifting and metric constrained interpolation

Abstract: The Sz.-Nagy-Foias commutant lifting theorem has proved to be a useful tool in solving metric constrained interpolation problems appearing in mathematics and engineering. In this talk a few new versions of this lifting theorem will be presented. The first is a relaxed version of the theorem, the second a robust version, and the third involves the distance to intertwining operators. Also some new applications and open problems will be discussed. The classical Carathéodory-Schur interpolation problem will serve as a role model.

The talk is based on recent work with C. Foias and A. Frazho.

Tid och plats: Tisdagen den 11 februari kl. 15.30 – 16.30 vid Institut Mittag-Leffler, Auravägen 17, Djursholm.

PRESENTATION AV EXAMENSARBETE I MATEMATISK STATISTIK

Marija Milicevic: Long-term Health Insurance

Abstract: In order to maintain a profitable business of health insurance, the insurance companies must almost continuously adjust the assumptions which form the basis of estimating premiums as well as sickness reserves. These assumptions involve, among others, the probability of getting ill and remaining ill. Estimating this probability is mostly done by parametric methods. However, in recent years, the companies' financial situations suggest that these methods possibly need some adjustment.

This work is done in order to examine whether an adjustment is needed and if so, to indicate the direction of this adjustment. The comparison is made between the parametric G84 and the non-parametric method based on the Nelson-Aalen estimator. Diagrams affirm the notion that the parametric method needs an adjustment as well as the fact that the adjustment will lead to higher premiums for the policyholders.

Tid och plats: Onsdagen den 12 februari kl. 15.15 i rum 306 (Cramérrummet), hus 6, Matematiska institutionen, SU, Kräftriket.

MITTAG-LEFFLER SEMINAR

Paul A. Fuhrmann: Observer theory

Abstract: Observer theory has a long history, starting with Luenberger's work. In spite of that, not only is it in an incomplete state, but many of the proofs of known results are faulty. In recent years there has been quite an improvement in the state of observer theory. The talk will survey some of the new results and methods. In particular I will emphasize the connections between standard, state space based, observer theory, geometric control, polynomial methods, and behaviour theory.

The presentation is based mainly on the work of M. E. Valcher and J. C. Willems, and my own work which was done partly in cooperation with U. Helmke and J. Trumpf.

Tid och plats: Torsdagen den 13 februari kl. 15.30 – 16.30 vid Institut Mittag-Leffler, Auravägen 17, Djursholm.

PRESENTATION AV EXAMENSARBETE I MATEMATIK

Bengt Hedlund:

Observationer i relativitetsteori

Abstract: Those who have studied relativity have probably seen the length contraction being illustrated by contracted objects. These pictures are useful for calculating physical events but misleading when it comes to understanding how objects are observed from a single point at high velocities. In this study, a neat solution is found to the latter problem by reducing the three dimensions of the world to the two we are used to observe in everyday life (especially when keeping one eye shut). By using the concepts of local Euclidean and null spaces the problem is readily solved with ordinary vector algebra. The investigation reduces to a study of Lorentz transformations. A homomorphism to the Möbius transformation makes the analysis easier. In particular two interesting geometrical properties of the transformation are found.

Tid och plats: Onsdagen den 12 februari kl. 10.00–11.00 i sal 35, hus 5, Matematiska institutionen, SU, Kräftriket.

MITTAG-LEFFLER SEMINAR

Ruth F. Curtain:

Reciprocals of well-posed linear systems

Abstract: During the past decade great progress has been made in studying the class of well-posed linear systems. Roughly speaking, these are generalizations of the finite-dimensional systems specified by 4 matrices A, B, C, D to systems with Hilbert spaces as the input, output and state spaces and unbounded generating operators A, B, C . The interest in this generalization is motivated by control and system theoretic problems for systems described by delay equations and partial differential equations. Although the unbounded nature of the generating operators introduces many technical complications, a mature and relatively complete theory has been developed. As would be expected, not all the results are as nice as the ones for finite-dimensional systems. In particular, the Riccati equation theory involves awkward assumptions that cannot be easily verified.

In this lecture I propose a novel approach to studying a well-posed linear system with generating operators A, B, C , and transfer function $\mathbf{G}$ and under the generic assumption that $0 \in \rho(A)$. We introduce the associated reciprocal system $A^{-1}, A^{-1}B, -A^{-1}C, \mathbf{G}(0)$, which has four *bounded* generating operators. There are nice relationships between the system theoretic properties of a well-posed linear system and its reciprocal system. For example, they have the same input, output and input-output stability properties. Moreover, many control and system theoretic problems for well-posed linear systems can be translated into equivalent problems for their reciprocal systems. Due to the bounded nature of the generators, the problems for the reciprocal system are easier to solve, and these solutions can be translated back to solutions for the original well-posed linear system.

This approach has proved successful in solving spectral factorization problems and optimal control problems that have solutions in terms of a Riccati equation. Current research is being carried out on the existence of (pseudo-) coprime factorizations, numerical solutions of Riccati equations, and control problems for unstable systems.

Tid och plats: Torsdagen den 13 februari kl. 14.00–15.00 vid Institut Mittag-Leffler, Auravägen 17, Djursholm.

PRESENTATION AV EXAMENSARBETE I TILLÄMPAD MATEMATIK

Elin Broström:

Investigation of the Electromagnetic Field Distribution in an Undermoded Reverberation Chamber

Abstract: Electromagnetic radiation with high intensity can cause disturbance and destruction of electronic systems. The expansion of the electronic infrastructure has implied demands on methods for testing electronic equipments susceptibility. A relatively new type of test facility for doing susceptibility tests is the Reverberation Chamber (RC).

The properties of the electromagnetic field in the chamber have to be well-known. A deterministic model of the field would be very complex, therefore field statistics are used to describe the field.

Normally the RC is used for applications at high frequencies, but low frequency measurements are also of great practical and economical interest. For high frequencies it exists a commonly accepted statistical model for the field in the chamber. In this thesis some newly proposed theoretical distribution functions are compared to experimental data at low frequencies, where the former model breaks down. An improvement in the agreement with measured data for the new models is shown at low frequencies.

The work is done at FOI, Swedish Defence Research Agency.

Tid och plats: Tisdagen den 11 februari kl. 13.15 i seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

KOMBINATORIKSEMINARIUM

Anders Björner: Rum av evolutionära träd

Sammanfattning: Jag kommer att redogöra för ett arbete av Billera, Holmes och Vogtman från år 2001, där ett metriskt rum studeras vars punkter är s.k. fylogenetiska träd (träd med vissa nod- och kantmärkningar som modellerar samband i evolutionär biologi). Dessa rum har Gromovs "Cat(0)"-egenskap, vilket bl.a. medför att unika geodetiska stigar finns mellan två givna träd. Problemet att hitta ett träd som representerar ett medelvärde av vissa andra träd (ett problem som uppstår i tillämpningarna) diskuteras utgående från denna geometriska modell.

Tid och plats: Onsdagen den 12 februari kl. 10.15–12.00 i seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

ALGEBRA- OCH GEOMETRISEMINARIUM

Matthieu Romagny:

Compact moduli for curves with level structure

Abstract: There are deep relations between covers of algebraic curves, on one hand, and level structures on curves, on the other. For example moduli spaces for both were used in order to prove the irreducibility of the moduli space of curves $\mathcal{M}_g$ (Hurwitz 1891 in char. 0, Deligne-Mumford 1969 in char. $p > 0$). I express these relations in order to give a compactification for the stack of curves with level structure $\mathcal{M}_g(G)$ of Deligne-Mumford.

Tid och plats: Onsdagen den 12 februari kl. 13.15–15.00 i seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

CELSIUSFÖRELÄSNING I UPPSALA

Teknisk-naturvetenskapliga fakultetens förnämsta gästföreläsningar är Celsius- och Linnéföreläsningarna, som äger rum varje år i februari. Det är ovanligt att en matematiker inbjuds att hålla en Celsiusföreläsning — Benoit Mandelbrot var här 1997. I år har *Jean Serra* från École des Mines de Paris inbjudits, och han kommer att hålla följande föreläsning:

Mathematical morphology and its uses

Abstract: A number of scientific questions require a double approach that associates properties with some space structures. The problem arises in physics when a macroscopic behaviour is described by integrating an elementary phenomenon under limit conditions. Similarly, in image processing, the object under study is “informed” by some conditions, or criteria, that allow us to speak of its size spectrum, or its segmentation, for example.

Mathematical morphology is an attempt to make intelligible this duality, and to exploit it. A picture of this approach will be given in the lecture by means of two examples.

The first one deals with the mechanics of rupture in materials science. Such phenomena, where the weaker element governs the global behaviour, are correctly modelled by Boolean functions, which are defined as infima of elementary random events. The Boolean model allows us to express the change of scale and provides a theoretical explanation to empiric laws of material rupture.

The second topic developed in the lecture is that of segmentation. The human perception act begins by delineating regions of the space (“Gestalten”) and continues by assigning them meanings (“this is a chair, this is a face”). In image processing, this first step is called segmentation of the scene. Mathematical morphology interprets it as the largest partition of the space into zones that are homogeneous according to some criteria. These latter cannot be arbitrary, and must fulfil some internal consistency. Conversely, knowledge about them allows us to master the segmentation operations, e.g., to simplify images while preserving their most significant regions. This point is illustrated by video tracking and compression in video-phony.

About the speaker: Jean Serra was born in 1940, and his nationality is French. In cooperation with G. Matheron he laid the foundations of mathematical morphology in 1964, whose purpose was to describe quantitatively shapes and textures of natural phenomena, at micro and macro scales. In 1967, they founded Centre de Morphologie Mathématique, at École des Mines de Paris.

Since then he has been working in this framework as Directeur de Recherches. His main book is a two-volume treatise entitled *Image Analysis and Mathematical Morphology* (1982, 1988). In the last twenty years, his major contributions to mathematics and physics are the following: *Random functions considered as sets, and in particular Boolean functions* (1982–1988); *Morphological filtering* (with G. Matheron, 1982–1987), which is an alternative to Fourier analysis; *The formulation of mathematical morphology in the framework of complete lattices* (with G. Matheron, 1986–1994); *Connections and segmentations adapted to image analysis* (1993–2000).

He founded the International Society for Mathematical Morphology in 1993 and was elected its first president. His achievements include twelve books, one hundred and forty papers, several patents of devices for image processing, and various awards and titles, such as Doctor Honoris Causa of the University Autònoma of Barcelona (Spain) in 1993, and the first great prize of the French society of pattern recognition (AFFCET), in 1988. In June 2001, he co-organized with C. Kislman the First French-Nordic Summer School in Mathematics, at Lake Erken, Sweden.

Tid och plats: Onsdagen den 12 februari kl. 14.00 i sal X, Universitetshuset i Uppsala.

SEMINARIUM I UPPSALA

Jean Serra: Segmentation and connections

Abstract: In image processing, an image or a sequence is said to be segmented when the area where it is defined has been partitioned into homogeneous zones in accordance with a given criterion. For instance, if this image is represented by a digital function $f: E \rightarrow \mathbf{R}$, where E is a set equipped with a connection, f is segmented into flat and connected zones when a partition D of E is created, such that for any $x \in E$, the class $D(x)$ is the largest connected component of E including point x and on which the function f is constant and equal to $f(x)$. Therefore we propose to define the segmentation of a function according to a given criterion as the maximum partition of the space into classes where the criterion is fulfilled.

The first part of the seminar will hold on the analysis of this notion. The key element here is the triple identification of segmentation, of connective criteria (i.e., if for a given function f , criterion s is satisfied over a set family $\{A\{i\}\}$ of nonempty intersection, then it is also satisfied on their union), and of a connection generated by each function on the space $P(E)$. The lecture will then follow by analysing the properties of connective criteria (“Do they form a lattice, or an inf semi-lattice only?”, “Do we need an increasingness requirement?”, etc.) and of the segmentations.

The second part of the lecture lists the most popular connective criteria developed in the framework of mathematical morphology, and comments on their performances and on their limits, which turn out to be translated into over-segmentations.

In the third and last part of the seminar, we will improve these limits by examining how to enlarge a segmentation. The convenient notion here is that of a connected filter. The case of the flat zones will be treated in details (pulse opening, and its extension to other operations, in particular to levelling), and some variant will be introduced.

Tid och plats: Torsdagen den 13 februari kl. 10.15 i rum 1111, Matematiska institutionen, Polacksbacken, Uppsala universitet.

SEMINARIUM I UPPSALA

Jean Serra: Colour image processing

Abstract: The seminar on colour image processing attempts to treat four aspects of digital colour imagery.

1. It begins with a critical analysis of the current colour spaces. Many of these spaces were originally developed for computer graphic applications, and are not suitable for quantitative image processing (lack of independence between chromatic and not chromatic data, measurements which do not satisfy the triangular inequality . . .). Some changes are proposed for improving the current spaces, and new spaces are introduced.

2. The second point, more specific, deals with the hue, i.e., with data that are defined on the unit circle. The round table structure of the unit circle may seem contradictory with the need of suprema and infima required by lattices. However, one can overcome the contradiction either by accepting increment-based operators only, or by introducing criteria of clusters, or finally by using the hue as a way to label the space.

3. The algorithms which are based on the product lattice of the three colours RGB introduce parasite supplementary colours. Such an effect disappears when the lattice under study is totally ordered (e.g., lexicographic order). To which extent do we need a total order, and if so, which one? These questions are approached within the scope of filtering.

(Continued on the next page.)

4. The segmentation techniques generally involve gradients. Consequently, the first part of the lecture is devoted to introduce various colour gradients and increments, and to compare their performances. The second part applies to colour images and the segmentation techniques based on watersheds and on connections. The last part of the lecture concerns multispectral data such as those obtained in polarized microscopy.

Tid och plats: Fredagen den 14 februari kl. 10.15 i Centre for Image Analysis, Lägerhyddsvägen 17, Uppsala.

MONEY, JOBS

Columnist: Hans Rullgård, Department of Mathematics, SU. E-mail: 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.

Unless stated otherwise, a given date is the last date (e.g. for applications), and the year is 2003. 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.
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

Money, to apply for

11. Fulbright Commission utlyser stipendier till svenska akademiker som redan har disputerat eller som kommer att avlägga sin doktorsexamen före beräknad avresa till USA, 15 april. Web-info: <http://www.usemb.se/Fulbright/index.html>.

Jobs, to apply for

12. Sektionen för matematiska vetenskaper vid Chalmers tekniska högskola utlyser doktorandtjänster inom matematik och matematisk statistik, 1 mars. Web-info: <http://www.md.chalmers.se/mv/jobs/phd/03/index-sv.html>.

Old information

Money, to apply for

13. C. F. Liljevalch J:ors resestipendier för studerande vid naturvetenskapliga fakulteten, Stockholms universitet. Stipendium kan tilldelas den som vid ansökningstidens utgång, 20 februari, inte har fyllt 35 år och som har studerat vid Stockholms universitet under minst två terminer. Ansökan skall ske på särskild blankett. Web-info: http://www.su.se/forskning/stipendier/stipendiatinfo_liljevalch.php3.

(Continued on the next page.)

14. Sweden-Japan Foundation (SJF) utlyser stipendier för studier, forskning samt examensarbete och praktik på högskolenivå i Japan. Stipendierna är främst avsedda för studier inom teknik, naturvetenskap, ekonomi, juridik, medicin och handel. Beslut fattas vid tre tillfällen per år. Sista ansökningssdag är 1 mars, 1 september samt 1 december. Ansökan skall ske på särskild blankett. Info: 08-611 68 73, e-post info@swejap.a.se. Web-info: <http://www.swejap.a.se>.
 15. Sigrid Arrhenius' stipendium ges som ekonomiskt stöd åt lovande forskare vid Stockholms universitets naturvetenskapliga fakultet, som skall avlägga doktorsexamen och bedriver avhandlingsarbete inom något av fysikens, kemins, matematikens, astronomins, geologins eller meteorologins ämnesområden. Avhandlingen skall avses bli framlagd under 2003 eller 2004. Sökande får inte ha disputerat vid ansökningstidens utgång, 14 februari. Ansökan skall ske på särskild blankett. Web-info: <http://www.natvet.su.se/internt/anslag.html>.
 16. 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 befördrar 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 till resor inom Norden beviljas i regel inte. Bidrag kan sökas när som helst under året. Info: Anette Nyström, 08-790 70 59. Web-info: se punkt 4 ovan.
 17. NorFA utlyser stöd till forskarutbildningskurser (sista ansökningssdag 2 maj), nätverkssamarbete (2 maj), gästprofessor (1 mars), mobilitetsstipendier (1 mars, 1 juni och 1 oktober) samt förprojekt och planeringsmöten (1 mars, 1 juni och 1 oktober). Web-info: Se punkt 9.
 18. Wenner-Gren Stiftelserna utlyser resestipendier för korta studieresor (1–2 veckor) under tiden 1 juli – 31 december (sökande skall vara disputerad forskare under 40 år) samt anslag till anordnande av internationellt vetenskapligt symposium, 10 mars. Ansökningsblanketter och web-info: <http://www.swgsc.org/wenner.html>.
 19. Stiftelsen G. S. Magnussons fond utlyser stipendier och forskningsanslag för doktorander och disputerade forskare, 31 mars. Ansökan skall ske på särskild blankett. Web-info: http://www.kva.se/KVA_Root/swe/awards/scholarships/detail_scholarships.asp?grantsId=8.
- Jobs, to apply for*
20. Matematiska institutionen vid Lunds universitet söker en doktorand i matematik med inriktning mot datorseende, 12 februari. Info: Karl Åström, 046-222 45 48, e-post Karl.Astrom@math.lth.se. Web-info: <http://personalserv.pers.lu.se/document/132.pdf>.
 21. Institutionen för teknik, avdelningen för matematik och fysik vid Högskolan i Kalmar söker en doktorand i matematik (differentialgeometri och global analys alternativt matematisk didaktik), 1 mars. Info: Valeri Marenitch, 0480-44 69 38, e-post valery.marenich@hik.se, Leif Eriksson, 0480-44 60 28, e-post leif.eriksson@hik.se. Web-info: <http://www.hik.se/forskning/matematik.pdf>.
 22. Kansli DEF vid KTH utlyser postdoc-stipendier samt en doktorandanställning vid någon av institutionerna för fysik, matematik eller mekanik, finansierade av medel från Göran Gustafssons Stiftelse. Behörig till doktorandtjänsten är den som avlagt eller kommer att avlägga civilingenjörsexamen eller motsvarande under tiden 1 mars 2002 – 28 februari 2003. Sista ansökningssdag för postdoc-stipendierna via kontaktpersonerna på KTH är den 24 januari och för doktorandanställningen den 21 februari. Web-info: <http://www.kth.se/student/def/>.
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