BRÅKET

Information om seminarier och högre undervisning i matematiska ämnen i Stockholmsområdet

NR 30 **FREDAGEN DEN 26 SEPTEMBER 2008**

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 2 oktober kl. 13.00.

Phylogenetics and comparative genomics

En studiecirkel (journal club/ study group) med ovanstående titel skall anordnas vid Matematiska institutionen, SU. Det första mötet skall äga rum tisdagen den 4 november. Se sidorna 9 – 10.

Money, jobs: Se sidorna 10 – 11.

SEMINARIER

Fr 09–26 kl. 11.00 – 12.00. Optimization and Systems Theory Seminar. Anders Forsgren, Optimeringslära och systemteori, KTH: *An elementary proof of optimality conditions for linear programming.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se Bråket nr 29 sidan 7.

Fr 09–26 kl. 13.15 – 13.45. Seminarium i numerisk analys. Maryam Saadvandi presenterar sitt examensarbete: *Passivity Preserving Model Reduction and Selection of Spectral Zeros.* Rum 1537, KTH CSC, Lindstedtsvägen 3, plan 5. Se sidan 4.

Fr 09–26 kl. 13.15 – 14.15. Graduate Student Seminar. Nir Lev, Matematik, KTH: *Approximation by translates of a function.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se Bråket nr 29 sidan 6.

Fr 09–26 kl. 14.15 – 15.00. Seminarium i numerisk analys. Dr Joost Rommes, NXP Semiconductors, Design Technology & Flows, Eindhoven, The Netherlands: *Eigenvalue problems and model order reduction in industry.* Rum 1537, KTH CSC, Lindstedtsvägen 3, plan 5. Se sidan 5.

Ti 09–30 kl. 13.15. Plurikomplexa seminariet. Robert Berman, Göteborg: *Convergence towards equilibrium of optimal interpolation nodes for multivariate polynomials.* Rum 306, hus 6, Matematiska institutionen, SU, Kräftriket. Se sidan 6.

Fortsättning på nästa sida.

Disputation i datalogi

Irem Aktug disputerar vid KTH på avhandlingen *Algorithmic Verification Techniques for Mobile Code* onsdagen den 8 oktober kl. 10.00. Se sidan 8.

Seminarier (fortsättning)

Ti 09–30 kl. 14.00. Optimization and Systems Theory Seminar. *(Observera dagen och tiden!)* **Giovanna Fanizza,** Optimeringslära och systemteori, KTH: *Modeling and Model Reduction by Analytic Interpolation and Optimization.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 3.

On 10–01 kl. 10.15–12.00. Kombinatorikseminarium. Svante Linusson, KTH: *Percolation on bunkbed graphs and a conjecture by Häggström.* Seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se sidan 4.

On 10–01 kl. 10.30–12.30. Logikseminariet Stockholm-Uppsala. Kaj B. Hansen, Filosofiska institutionen, Uppsala universitet: *From Logical Analysis to Physics: The case of Special Relativity.* Sal 1245, Polacksbacken, Uppsala universitet. Se sidan 5.

On 10–01 kl. 13.15–14.15. Seminarium i analys och dynamiska system. Dani Blasi Babot, Barcelona: *Interpolating sequences in analytic Besov spaces.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Se Bråket nr 29 sidan 8.

On 10–01 kl. 13.15. Algebra and Geometry Seminar. Alexander Engström: *Algebraic statistics.* Rum 306, hus 6, Matematiska institutionen, SU, Kräftriket. Se sidan 3.

On 10–01 kl. 14.30–15.30. KCSE (KTH Computational Science and Engineering Centre) Seminar. Erik Brandt, Teoretisk fysik, KTH: *Dynamic structure factors from lipid membrane molecular dynamics simulations.* Rum RB 15, Roslagstullsbacken 15, AlbaNova universitetscentrum. Se Bråket nr 29 sidan 4.

To 10–02 kl. 10.30. Seminar in Fluid Mechanics. Johan Ohlsson, Mekanik, KTH: *Direct and large-eddy simulation of turbulent flow in a plane asymmetric diffuser by the spectral element method.* Seminarierummet, Institutionen för mekanik, KTH, Teknikringen 8. Se sidan 9.

To 10–02 kl. 14.00–15.00. Institut Mittag-Leffler Seminar. Catherine Williams, Stanford University: *Asymptotic behaviour of marginally trapped tubes.* Institut Mittag-Leffler, Auravägen 17, Djursholm. Se sidan 9.

To 10–02 kl. 15.00–17.00. AlbaNova and Nordita Colloquium in Physics — The Manne Siegbahn Memorial Lecture. Professor Allan Watson, School of Physics and Astronomy, Leeds University: *Is the search for the origin of the highest-energy cosmic rays over?* Oskar Kleins auditorium, Roslagstullsbacken 21, AlbaNova universitetscentrum. Se Bråket nr 29 sidan 7.

To 10–02 kl. 15.30–16.30. Institut Mittag-Leffler Seminar. Piotr T. Chrusciel, Oxford and Tours Universities: *Vacuum initial data sets with positive cosmological constant.* Institut Mittag-Leffler, Auravägen 17, Djursholm. Se sidan 5.

Fr 10–03 kl. 15.15–16.15. Matematiska kollokviet i Uppsala. Professor Adimurthi, Tata Institute, Bangalore: *Conservation laws with continuous laws.* Polhemsalen, Ångströmlaboratoriet, Uppsala universitet. Kaffe/te serveras utanför föreläsningssalen kl. 14.55. Se sidan 4.

Må 10–06 kl. 10.15–12.00. Lecture in the course FDD3001. Johan Hoffman, KTH CSC: *The d'Alembert paradox: resolved or not?* Sal E36, KTH, Lindstedtsvägen 3, b.v. Se sidan 7.

Fortsättning på nästa sida.

Seminarier (fortsättning)

Ti 10–07 kl. 15.15. Seminarium i teoretisk datalogi. Associate Professor Úlfar Erlingsson, School of Computer Science, Reykjavík University: *Security policy enforcement through Transactional Memory Introspection.* Rum 1537, KTH CSC, Lindstedtsvägen 3, plan 5. Se sidan 7.

Úlfar Erlingsson är opponent vid Irem Aktugs disputation. Se sidan 8.

On 10–08 kl. 16.00. KTH/SU Mathematics Colloquium. Richard M. Schoen, Stanford University: *Positive curvature in geometry and relativity.* Seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Kaffe/te serveras kl. 15.30 i pausrummet, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 4. Se sidan 6.

To 10–09 kl. 15.15–16.15. AlbaNova and Nordita Colloquium in Physics. Professor Marek Abramowicz, Göteborg: *Observational constraints for primordial mini black holes.* Oskar Kleins auditorium, Roslagstullsbacken 21, AlbaNova universitetscentrum. Se sidan 10.

To 10–09 kl. 18.00–20.00. Offentlig föreläsning på Kungl. Vetenskapsakademien: *För vad fick de Nobelpris? Populärvetenskaplig kväll om 2008 års Nobelpris i fysik och kemi.* Beijersalen, Kungl. Vetenskapsakademien, Lilla Frescativägen 4A, Stockholm. Se sidan 6.

OPTIMIZATION AND SYSTEMS THEORY SEMINAR

Giovanna Fanizza: Modeling and Model Reduction by Analytic Interpolation and Optimization

Abstract: This talk gives an overview of the methods and results described in my thesis. The main topic of the thesis is modeling a class of linear time-invariant systems. The system is parameterized in the context of the interpolation theory with a degree constraint. In the thesis, this parameterization is the key tool to design models of dynamical systems, and the optimization theory is the major tool for parameter estimation of these models.

In the first part of the talk, we formulate two related interpolation problems with a degree constraint, *the analytic interpolation theory with a degree constraint and the rational covariance extension theory,* and the corresponding fundamental results developed by Byrnes, Lindquist, Georgiou and coauthors in the last decades.

Tid och plats: Tisdagen den 30 september kl. 14.00 i seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

ALGEBRA AND GEOMETRY SEMINAR

Alexander Engström: Algebraic statistics

Abstract: I will talk about a toric fiber product theorem which I used in a proof of a conjecture by Sturmfels and Sullivant in algebraic statistics, and then discuss further results by Engström and Sullivant.

Tid och plats: Onsdagen den 1 oktober kl. 13.15 i rum 306, hus 6, Matematiska institutionen, SU, Kräftriket.

SEMINARIUM I NUMERISK ANALYS

Maryam Saadvandi

presenterar sitt examensarbete:

Passivity Preserving Model Reduction and Selection of Spectral Zeros

Abstract: In this presentation we will show projection methods, developed by Sorensen and Antoulas, for model order reduction. The algorithms are designed for passivity preserving model reduction of linear time invariant systems. The algorithms are based upon interpolation at selected spectral zeros of the original transfer function to produce a reduced transfer function that has the specified roots as its spectral zeros. We show a (numerical) problem which might occur during application of the methods and discuss ways to deal with it. We also discuss which spectral zeros we should take to have a better approximation.

Tid och plats: Fredagen den 26 september kl. 13.15 – 13.45 i rum 1537, KTH CSC, Lindstedtsvägen 3, plan 5.

KOMBINATORIKSEMINARIUM

Svante Linusson:
Percolation on bunkbed graphs and a conjecture by Häggström

Abstract: At the Lars Holst symposium last year (see Bråket 2007, no. 20, page 11) Olle Häggström discussed percolation on product graphs $G \times P_1$. Here G is any graph and P_1 consists of two vertices connected by an edge. In edge percolation every edge in $G \times P_1$ is present independently with probability p. Olle Häggström stated a conjecture that for all G and p the probability that (u, x) is in the same component as (v, x) is greater than the probability that (u, x) is in the same component as (v, y) for every pair of vertices $u, v \in G$.

This innocent looking conjecture seems strangely difficult to prove. I will discuss a number of possible ways to attack this problem, and I will prove it for special classes of graphs G. Along the way I will present several related conjectures, prove their relations and discuss why they seem difficult to prove.

Tid och plats: Onsdagen den 1 oktober kl. 10.15 – 12.00 i seminarierum 3733, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7.

MATEMATISKA KOLLOKVIET I UPPSALA

Adimurthi:
Conservation laws with continuous laws

Abstract: Scalar conservation laws have been studied and existence of unique entropy solutions has been obtained when the flux is smooth. But many problems coming from different branches of engineering can be modelled by a scalar conservation law with discontinuous fluxes in space variables. The discontinuity occurs because of the multiphase, and the standard theory is not applicable. In this talk we describe how to construct a solution and find a right entropy condition at the inter phase. We show that with respect to this entropy condition the solution is unique.

Tid och plats: Fredagen den 3 oktober kl. 15.15 – 16.15 i Polhemsalen, Ångströmlaboratoriet, Uppsala universitet. Kaffe/te serveras utanför föreläsningssalen kl. 14.55.

SEMINARIUM I NUMERISK ANALYS

Joost Rommes:
Eigenvalue problems and model order reduction in industry

Abstract: Physical structures and processes are modelled by dynamical systems in a wide range of application areas. During the design of very large-scale integration (VLSI) chips, for instance, dynamical systems are used to describe the low-level circuit behaviour. Since these dynamical systems can become very large for modern chips, the essential simulation before production may consume hours or days of computing time. Hence there is need for efficient mathematical approaches that limit the computing time while preserving the accuracy. In this talk it will be shown how specialized eigenvalue methods and model order reduction techniques can be used to perform fast and accurate simulations of large dynamical systems. Results will be illustrated by numerical experiments with realistic examples.

Tid och plats: Fredagen den 26 september kl. 14.15 – 15.00 i rum 1537, KTH CSC, Lindstedtsvägen 3, plan 5.

LOGIKSEMINARIET STOCKHOLM-UPPSALA

Kaj B. Hansen:
From Logical Analysis to Physics:
The case of Special Relativity

Abstract: During the first half of the talk, I point out some logical oddities in the construction of Einstein's Special Theory of Relativity (E-STR). These features lead to consequences which create difficulties for the theory. In particular, E-STR cannot handle rotation. I propose an alternative theory of relativity, Transformation Theory, which avoids these problems. During the second half, we study a few illustrative examples, in the first room a sharpening of the Twin Paradox, called the Real Twin Paradox. If time permits, we also consider an application to the GPS system and possibly one more example.

Note: The seminar will, as far as possible, be kept at a simple and concrete level so that most of the content should be intelligible without any essential previous knowledge of STR.

Much of the content of the seminar can be found in two preprints on my homepage: http://www.filosofi.uu.se/personal/kajborgeha.htm.

Tid och plats: Onsdagen den 1 oktober kl. 10.30 – 12.30 i sal 1245, Polacksbacken, Uppsala universitet.

INSTITUT MITTAG-LEFFLER SEMINAR

Piotr T. Chrusciel:
Vacuum initial data sets with positive cosmological constant

Abstract: See title; compare PTC, D. Pollack: *Singular Yamabe metrics and initial data with exactly Kottler-Schwarzschild-de Sitter ends,* arXiv: 0710.3365 [gr-qc], http://arxiv.org/abs/0710.3365, and PTC, F. Pacard, D. Pollack: *Singular Yamabe metrics and initial data with exactly Kottler-Schwarzschild-de Sitter ends, II: Generic metrics,* arXiv: 0803.1817v1 [gr-qc], http://arxiv.org/abs/0803.1817.

Tid och plats: Torsdagen den 2 oktober kl. 15.30 – 16.30 vid Institut Mittag-Leffler, Auravägen 17, Djursholm.

PLURIKOMPLEXA SEMINARIET

Robert Berman:
Convergence towards equilibrium of optimal interpolation nodes for multivariate polynomials

Abstract: In the one variable case it is well-known that "optimal" interpolation nodes for large degree polynomials on a given compact set K in the complex plane behave as electric charges confined to K, minimizing their energy. More precisely, in the large degree limit the nodes become equidistributed on the potential theoretic equilibrium measure of the set K. In this talk I will report on a very recent joint work with Sébastien Boucksom (Paris) and David Witt Nyström (Göteborg), where we obtain the multivariate generalization of this result, which settles a conjecture on distributions of "Fekete points" going back to Leja in the 1950's. In higher dimensions the "pluripotential" equilibrium measure is defined in terms of the non-linear Monge-Ampère operator. It turns out that the proper geometric framework is that of a holomorphic line bundle over a compact complex manifold. From this point of view the "energy functionals" that appear in the multivariate case are, somewhat surprisingly, closely related to Kähler-Einstein geometry (notably the work by Aubin, Yau and Donaldson).

Tid och plats: Tisdagen den 30 september kl. 13.15 i rum 306, hus 6, Matematiska institutionen, SU, Kräftriket.

KTH/SU MATHEMATICS COLLOQUIUM

Richard M. Schoen:
Positive curvature in geometry and relativity

Abstract: This talk will survey the role that is played by positive curvature (scalar, Ricci, and sectional) in Riemannian geometry and general relativity. We will describe the many open problems and conjectures in this area, some of the techniques which have been used to attack them, and some progress which has been made in recent years.

Tid och plats: Onsdagen den 8 oktober kl. 16.00 i seminarierum 3721, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 7. Kaffe/te serveras kl. 15.30 i pausrummet, Institutionen för matematik, KTH, Lindstedtsvägen 25, plan 4.

OFFENTLIG FÖRELÄSNING PÅ KUNGL. VETENSKAPSAKADEMIEN

För vad fick de Nobelpris?
Populärvetenskaplig kväll
om 2008 års Nobelpris i fysik och kemi

För vad får de egentligen pris, de forskare som den 7 respektive 8 oktober får veta att de belönas med årets Nobelpris? Välkommen att ta del av denna dagsfärska information och ställa frågor direkt till Nobelkommittéernas ledamöter.

Ett komplett program för kvällen kommer att läggas ut på hemsidan http://www.kva.se onsdagen den 8 oktober.

Tid och plats: Torsdagen den 9 oktober kl. 18.00 – 20.00 i Beijersalen, Kungl. Vetenskapsakademien, Lilla Frescativägen 4A, Stockholm.

LECTURE IN THE COURSE FDD3001

Johan Hoffman:
The d'Alembert paradox: resolved or not?

Abstract: The d'Alembert paradox from 1752 is at the heart of mathematical fluid mechanics, as it expresses the lack of agreement between predictions of the basic mathematical model for fluids of low viscosity (such as air and water) and experimental observations. No original research claiming to have resolved the paradox exists, although the general attitude of the fluid mechanics community is that the boundary layer theory of Ludwig Prandtl from 1904 represents a resolution of the paradox "from a practical point of view". But the resolution of the paradox by Prandtl comes at a high price, since the need to resolve very thin boundary layers makes computational resolution of the problem impossible. Recently we have proposed a new resolution of the paradox based on a combination of mathematical analysis and computer simulation, where no boundary layers need to be resolved, which opens for computer simulation of a multitude of important problems traditionally deemed impossible. In this talk we describe the essential ideas in the traditional and the new resolutions, give some background to the paradox, and report on the reception of the new resolution by the scientific community.

This talk is also a lecture in the research level course FDD3001: Research: Theory, Method, Practice. You can read about this course at
http://www.nada.kth.se/~stefan/DD3001program08.html.

Tid och plats: Måndagen den 6 oktober kl. 10.15 – 12.00 i sal E36, KTH, Lindstedtsvägen 3, b.v.

SEMINARIUM I TEORETISK DATALOGI

Úlfar Erlingsson:
Security policy enforcement
through Transactional Memory Introspection

Abstract: Correct enforcement of authorization policies is a difficult task, especially for multi-threaded software. Even in carefully-reviewed code, unauthorized access may be possible in subtle corner cases. This talk introduces Transactional Memory Introspection (TMI), a novel reference monitor architecture that builds on Software Transactional Memory — a new, attractive alternative for writing correct, multi-threaded software. TMI may be seen as an early language-based security result in a promising new area that is both well-suited to formalization and can also hold large practical benefits.

TMI facilitates correct security enforcement by simplifying how the reference monitor integrates with software functionality. In particular, TMI can help ensure complete mediation of security-relevant operations, eliminate race conditions related to security checks, and simplify handling of authorization failures. The talk will present the design, implementation, and initial formalization of TMI-based reference monitors. The talk also describes the results of our initial experiments, which confirm the value of the TMI architecture and that it incurs only acceptable runtime overhead.

Tid och plats: Tisdagen den 7 oktober kl. 15.15 i rum 1537, KTH CSC, Lindstedtsvägen 3, plan 5.

DISPUTATION I DATALOGI

Irem Aktug

disputerar på avhandlingen

Algorithmic Verification Techniques for Mobile Code

onsdagen den 8 oktober 2008 kl. 10.00 i sal F3, KTH, Lindstedtsvägen 26, b.v. Till opponent har utsetts *Associate Professor Úlfar Erlingsson,* School of Computer Science, Reykjavík University.

Abstract of the thesis

Modern computing platforms strive to support mobile code without putting system security at stake. These platforms can be viewed as open systems, as the mobile code adds new components to the running system. Establishing that such platforms function correctly can be divided into two steps. First, it is shown that the system functions correctly regardless of the mobile components that join it, provided that they satisfy certain assumptions. These assumptions can, for instance, restrict the behaviour of the component to ensure that the security policy of the platform is not violated. Second, the mobile component is checked to satisfy its assumptions, before it is allowed to join the system. This thesis presents algorithmic verification techniques to support this methodology. In the first two parts, we present techniques for the verification of open systems relative to the given component assumptions. In the third part, a technique for the quick certification of mobile code is presented for the case where a particular type of program rewriting is used as a means of enforcing the component assumptions.

In the first part of this study, we present a framework for the verification of open systems based on explicit state space representation. We propose Extended Modal Transition Systems (EMTS) as a suitable structure for representing the state space of open systems when assumptions on components are written in the modal μ-calculus. EMTSs are based on the Modal Transition Systems (MTS) of Larsen and provide a formalism for graphical specification and facilitate a thorough understanding of the system by visualization. In interactive verification, this state space representation enables proof reuse and aids the user guiding the verification process. We present a construction of state space representations from process algebraic open system descriptions based on a maximal model construction for the modal μ-calculus. The construction is sound and complete for systems with a single unknown component and sound for those without dynamic process creation. We also suggest a tableau-based proof system for establishing temporal properties of open systems represented as EMTS. The proof system is sound in general and complete for prime formulae.

The problem of open system correctness also arises in compositional verification, where the problem of showing a global property of a system is reduced to showing local properties of components. In the second part, we extend an existing compositional verification framework for Java bytecode programs. The framework employs control flow graphs with procedures to model component implementations and open systems for the purpose of checking control-flow properties. We generalize these models to capture exceptional and multi-threaded behaviour. The resulting control flow graphs are specifically tailored to support the compositional verification principle; however, they are sufficiently intuitive and standard to be useful on their own. We describe how the models can be extracted from program code and give preliminary experimental results for our implementation of the extraction of control flow graphs with exceptions. We also discuss further tool support and practical applications of the method.

SEMINAR IN FLUID MECHANICS

Johan Ohlsson:
Direct and large-eddy simulation of turbulent flow in a plane asymmetric diffuser by the spectral element method

Abstract: Turbulent flow in a plane asymmetric diffuser is simulated by the spectral element method (SEM) as a direct numerical simulation (DNS) and with large-eddy simulation (LES) using an adapted version of the dynamic Smagorinsky model. The SEM, which is a high-order numerical method, has opened the possibility to accurately simulate fluid phenomena known to be very sensitive to numerical discretization errors, e.g. flows exhibiting separation. In addition, SEM exhibits favourable parallelization properties. Due to the development of tools for numerical stabilization specific for SEM, SEM is now suitable for turbulence simulations at moderate to high Reynolds numbers. Results from investigations on the influence of such stabilization tools are presented. For the turbulent diffuser flow case, results are presented for $\mathrm{Re} = 4500$ and $\mathrm{Re} = 9000$ (based on bulk velocity and channel half-height) and compared to results by Herbst et al. (2007). Quantities of interest include e.g. the size of the separation bubble and turbulent stresses.

Tid och plats: Torsdagen den 2 oktober kl. 10.30 i seminarierummet, Institutionen för mekanik, KTH, Teknikringen 8.

INSTITUT MITTAG-LEFFLER SEMINAR

Catherine Williams:
Asymptotic behaviour of marginally trapped tubes

Abstract: In recent years, the physical and mathematical properties of a class of spacetime hypersurfaces, known as marginally trapped tubes (MTTs), have been widely investigated. This talk will focus on the asymptotic behaviour of such MTTs in relation to traditional black hole event horizons. In particular, in the special case of spherical symmetry, one can give conditions a black hole spacetime which guarantee the existence and 'nice' asymptotic behaviour of an MTT; the conditions take the form of four inequalities relating metric and stress-energy tensor components, which must hold inside the black hole near future timelike infinity. These inequalities may be retrieved by prescribing suitable initial data for a certain type of matter model, the Higgs field (a self-gravitating nonlinear scalar field), for which the asymptotic result was previously unknown.

Tid och plats: Torsdagen den 2 oktober kl. 14.00 – 15.00 vid Institut Mittag-Leffler, Auravägen 17, Djursholm.

JOURNAL CLUB/STUDY GROUP

Phylogenetics and comparative genomics:
Biology, mathematics, statistics, and algorithms

The group intends to meet once every other week. Each time the participants prepare by reading a suggested paper, which is presented and discussed by one of the participants. Alternatively, someone might speek about his/her own work and future plans. A typical participant is a Ph.D. student or researcher in the general area of the study group, with an interest in broadening his/her scope.

(Continued on the next page.)

Time and place: Tuesdays at 14.00 – 15.45 in room 32, house 5, Department of Mathematics, Stockholm University, Kräftriket. The first meeting will take place on November 4, 2008. The remaining meetings before Christmas will take place on November 18, December 2, and December 16. See http://www2.math.su.se/gemensamt/karta.html for a map of Kräftriket.

You can register for e-mail send-outs at https://mail.sbc.su.se/mailman/listinfo/pcg-jclub.

Organizers: Tom Britton (Mathematical Statistics, SU, tom.britton@math.su.se), Jens Lagergren (Computational Biology, KTH, jensl@nada.kth.se), and Fredrik Ronquist (Naturhistoriska riksmuseet, fredrik.ronquist@nrm.se).

Welcome!
Tom Britton

ALBANOVA AND NORDITA COLLOQUIUM IN PHYSICS

Marek Abramowicz: Observational constraints for primordial mini black holes

Abstract: In the last ten or so years, the existence of stellar mass black holes and supermassive black holes has been proved beyond any reasonable doubt. We are confident that we understand astrophysical processes that form these two kinds of black holes. It was suggested that the primordial black holes (PBH), with much smaller masses, were formed in the very early universe just after the Big Bang, and that they may contribute to the dark matter halo of our Galaxy. The only direct observational constraints for these hypothetical objects (DMPBH) follow from no detection of any clear signature of the predicted Hawking's evaporation of them at masses $\sim 10^{15}$ g, and from interpretation of the microlensing results at masses $> 10^{26}$ g. Thus, the mass region $10^{15}\,\mathrm{g} < M < 10^{25}\,\mathrm{g}$ remains observationally unconstrained. The question whether (the hypothetical) collisions of DMPBH in this mass range with Earth, white dwarfs, neutron stars and red giant stars could lead to potentially detectable observational signatures, has not yet received a definite answer. In my opinion, such detections are unlikely.

Tid och plats: Torsdagen den 9 oktober kl. 15.15 – 16.15 i Oskar Kleins auditorium, Roslagstullsbacken 21, AlbaNova universitetscentrum.

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 2008. 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.

Old information

Money to apply for

11. Stiftelsen för internationalisering av högre utbildning och forskning (STINT) välkomnar ansökningar till programmet Institutional Grants for Younger Researchers. Programmet riktar sig till yngre forskare som tidigt i sin karriär — högst sju år efter disputationen — vill bygga upp ett internationellt samarbete med andra yngre forskare. Forskningssamarbete skall utgöra tyngdpunkten, men aktiviteter som t.ex. undervisning, seminarier, gemensamma kurser och sommarskolor kan utgöra en del av samarbetet. Bidrag om högst 400 000 kr per år kan beviljas för upp till tre år. Sista ansökningsdag är den 15 oktober. Web-info: http://www.stint.se/index.php?articleId=137.
12. Karl Engvers stiftelse delar ut medel till forskare och lärare vid KTHs institutioner att användas till resor och deltagande i konferenser samt för presentationer av egna forskningsresultat. I andra hand får stiftelsens medel användas till andra projekt som drivs av studenter eller forskarstuderande vid högskolan. Sista ansökningsdag är den 1 oktober. Web-info: http://www.kth.se/aktuellt/stipendier/1.5279.

Jobs to apply for

13. Högskolan i Halmstad söker en universitetslektor i matematisk statistik med placering vid sektionen för informationsvetenskap, data och elektroteknik. Sista ansökningsdag är den 30 september. Web-info: http://www.hh.se/omhogskolan/ledigaanstallningar/.
14. Karlstads universitet söker en universitetslektor i matematikdidaktik. Sista ansökningsdag är den 1 oktober. Web-info: http://www.kau.se/aktuellt/lediga_anstallningar/index.lasso?to_do=detail&tjanst_id=1984.
15. Skolan för datavetenskap och kommunikation (CSC) vid KTH kungör "the Dahlquist Postdoctoral Fellowship", uppkallat efter professor Germund Dahlquist, KTHs pionjär inom numerisk analys. Priset är forskning på heltid på KTH Numerisk Analys. Prisperioden är ett år, och kan förlängas med ytterligare ett år. Sista ansökningsdag är den 15 november. Web-info: http://www.kth.se/csc/om/priser/dqf/1.14813?l=sv_SE.
16. University of Iceland söker en "Associate Professor" i tillämpad matematik. Sista ansökningsdag är den 1 november. Web-info: http://www.raunvis.hi.is/Reiknifr/.
17. Lunds universitet söker en professor i matematik med inriktning mot analys. Det är viktigt att den sökandes vetenskapliga inriktning förstärker någon av de forskningsinriktningar inom analys som redan är representerade vid avdelningen (differentialekvationer samt analytiska funktioner och operatorteori, dessutom harmoniska avbildningar och vertexalgebror). Sista ansökningsdag är den 30 september. Web-info: http://www3.lu.se/info/lediga/admin/document/Professor_matematik_080630.pdf.
18. Mälardalens högskola söker en doktorand i matematik/tillämpad matematik med placering i Västerås. Sista ansökningsdag är den 1 oktober. Se Bråket nr 26 sidorna 7 – 8 och http://www.mdh.se/jobb/VisaAnstallning?id=957.