



## \*\*\*LITE MAT\*\*\*

Ett informationsblad från matematiska institutionen vid Linköpings universitet

v21/1999

### Frelsningar

#### Matematiska kollokviet

Professor Per Enflo, Kent State University, Ohio, håller fyra föredrag:

Onsdag den 26 maj 1999 kl. 10.15–11.00 om

*The dynamics of homeomorphisms in  $R^n$ : How well can the future be predicted?*

Onsdag den 26 maj 1999 kl. 11.15–12.00 om

*Extremal vectors and invariant subspaces.*

Det första föredraget kommer att vara populärt, och det andra kräver inte heller djupgående förkunskaper.

P torsdag den 27 maj kommer han att tala om tv tillämpningar, den ena, kl. 10.15–11.00, är matematik-biologi och behandlar effekten av zebra-musslans invasion i Lake Erie och vad man kan vänta sig hända i framtiden. Titeln är *A model to study the effect of the zebra mussel invasion in Lake Erie and the effect of different levels of Phosphorus loading*

Det andra föredraget, kl 11.15–12.00, som behandlar matematik-antropologi har titeln

*The Neandertals - a simple explanation for what looks like a contradiction between fossil evidence and DNA evidence.* och behandlar kontroversen mellan "Out of Africa"-teorin och "The multiregional theory" i människans utveckling. Dr redogörs för en enkel förklaring för vad som ser ut som en motsägelse mellan fos-

sila fynd och DNA-studier.

Observera ändringen av förra veckans annonsering!

Lokal: MAI:s seminarierum Beurling.

Lars-Erik Andersson

#### Seminarium i matematisk statistik

Tisdagen den 25 maj kl 10.15–11.15 hller Docent Timo Koski, KTH, ett seminarium med titeln:

*Prediktiv statistisk modellering med utnyttjande av De Finettis representationsats*

Sammanfattning:

De Finettis sats sger att varje simultan sannolikhet fr en 'utbytbar' stokastisk process alltid kan skrivas som en kontinuerlig blandning av produktsannolikheter. Med en dylik blandning avses en integral av produktsannolikheterna med avseende p en a priori sannolikhetsfördelning.

Mnga viktiga resultat i t.ex. universell prediktion och kllkodning, i statistiskt modellval samt i maskininlrning kan ges en enhetlig behandling och tolkning med hjlp av denna blandningsintegral och de motsvarande prediktiva sannolikheterna, speciellt om vi anvnder s.k. Jeffreys prior.

Dessa samband och begrepp illustreras med ett fundamentalt exempel, som utvidgas till en tillmpning med anknytning till bioinformatiken.

Lokal: Beurling

Alla intresserade r vlkomna!

Eva Enqvist

### **Seminarium i numerisk analys och tillämpad matematik**

Fredagen den 28 maj kl 13.15 talar professor Anatoly G. Yagola, Department of Mathematics, Moscow State University, om  
*Ill-posed problems and a priori information.*

#### *Abstract*

Many mathematical problems of science, technology and engineering are formulated in the form of an operator equation of the first kind with operator and right side approximately known. Often such problems turn out to be ill-posed. It is possible to solve such problems only by using the special methods - regularizing algorithms.

It is very important to use a priori information for constructing regularizing algorithms. If such information is available sometimes it is possible to reformulate the problem as well-posed, sometimes to construct regularizing algorithms with very good properties.

We shall consider ill-posed problems with a priori information of the following types: 1) unknown solution is monotonic (or convex, etc.) function; 2) unknown solution is sourcewise represented. We shall discuss the question how to use a priori calculated approximation for construction of unknown solution of ill-posed problem. We would like also to discuss some fundamental concepts and results of the theory of ill-posed problems.

In applications we shall describe some ill-posed problems in astrophysics. As an example of successful implementation of regularizing algorithms for stable approximation of normal quasisolution of nonlinear ill-posed problem in finite-dimensional spaces we can take the inverse vibrational problem - molecular force field constructing using all available experimental data and results of ab initio quantum mechanical calculations.

Lokal: MAI:s seminarierum Beurling.

Vlkomna!  
Lars Eldn

### **Licentiatseminarium**

Fredagen den 28 maj kl 13.15 presenterar Pia Bergendorff sin licentiatavhandling i matematisk statistik

*Extracting information on traffic patterns from classified traffic counts*

Diskutant r Mats Wiklund, VTI.

Lokal: Brahe, E328, Fysikhuset. 1tr

Alla intresserade hlsas vlkomna!

Urban Hjorth

### **Seminarium i Optimeringslra**

Tisdagen 1 juni kl 10.30-11.30 (Obs tid!) ger Teodor Gabriel Crainic, Centre de recherche sur les transports, Université de Montréal, and Département des sciences administratives Université du Québec à Montréal, ett seminarium med titeln

*Path Recovery and Applications in Multimode, Multicommodity Networks*

#### Abstract:

The recovery of path information from the link flows of a multicommodity, multimode network with non linear cost functions is an essential component of several major classes of analyses. It is also an important analysis tool for transportation planning methods and software. Following a rather brief presentation of the STAN model, method, and software for strategic analysis and planning of freight transportation, we present the path recovery problem and review possible methodological approaches. We then describe the implementation selected STAN. Several applications of the path analysis capabilities of STAN are illustrated, including the adjustment of multiproduct demand matrices based on counting post data.

Lokal: Kompakta rummet, ing 23

Vlkomna!  
Jan Lundgren

### **Workshop optimeringslära**

I anslutning till den officiella avtackningen av Sven Erlander arrangerar Optimeringslära en workshop på eftermiddagen den 3 juni.

#### **Program**

13.15-13.45 Jan Lundgren, LiTH,  
*30 years of research on traffic planning models at the Division of Optimization*

13.45-14.15 Michael Florian, Centre for Research on Transportation, Université de Montreal, *Simultaneous multi-class multi-mode equilibrium model with nested logit demand mode choice functions*

14.15-14.45 David Boyce, University of Illinois at Chicago, *Implementation and validation of a combined travel forecasting model for the Chicago Region*

14.45-15.15 Kaffe

15.15-15.45 Siv Scheele, Inregia AB, Stockholm, *Models of practical traffic planning problems in practice*

15.45-16.15 Per Smeds, Arbustum Invest, *Seventeen non-optimal years*

16.15-16.45 Kurt Jønsten, Norges Handelshøyskole, Bergen. *Optimization as a basis for academic activities in various disciplines - What has happened with Sven Erlanders academic "grand children" and how many are they?*

Lokal: ISYs seminarierum, ing 27, D-korridoren

Välkomna!

PO Lindberg och Jan Lundgren

### **Presentation av examensarbete**

Torsdagen den 27 maj kl 13 presenterar Sandra Petersson och Ann Pettersson sitt examensarbete i optimeringslära med titeln

*A Simulation study in Supply Chain Management- Information Sharing and Agents in a PAC Environment*

Lokal: MAIs seminarierum Beurling

Välkomna!

PO Lindberg

Material till Lite Mat lämnas till Maud Lindström senast torsdagar kl 12.00  
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