

KASS 2007:

December 19, 10:15

Elin Götmark (Göteborg): *Explicit solutions of division problems for matrices of polynomials.*

Abstract: By means of integral formulas, we find new explicit representations of solutions to division problems in \mathbb{C}^n involving matrices of polynomials. We also find estimates of the polynomial degree of the solutions.

October 30, 10:15

Elizabeth Wulcan (Göteborg): *Decomposition of residue currents.*

Abstract: I will discuss a joint work with Mats Andersson. In a previous work we have defined, given an ideal $\mathcal{J} \subset \mathcal{O}_0$ and a free resolution of \mathcal{J} , a vector valued residue current, R , whose annihilator ideal, $\text{ann } R$, is precisely \mathcal{J} .

We show that R admits a natural decomposition $R = \sum R^{\mathfrak{p}}$, where the sum runs over the associated primes $\{\mathfrak{p}\}$ of \mathcal{J} , such that $R^{\mathfrak{p}}$ has support on the variety $V_{\mathfrak{p}}$ of \mathfrak{p} and $\mathcal{J} = \bigcap_{\mathfrak{p}} \text{ann } R^{\mathfrak{p}}$ is a primary decomposition of \mathcal{J} . The currents $R^{\mathfrak{p}}$ are defined as certain restrictions (in a sense that will be made clear) of R to varieties and more generally constructible sets; in particular, if \mathcal{J} has no embedded primes $R^{\mathfrak{p}}$ is the restriction of R to $V_{\mathfrak{p}}$.

October 12, 10:15

Alexander Brudnyi: *On Local Behavior of Holomorphic Functions Along Complex Submanifolds of \mathbb{C}^N .*

Abstract: In the talk I present some general results on local behavior of holomorphic functions along complex submanifolds of \mathbb{C}^N . As a corollary, I obtain some multi-dimensional generalizations of an important result of Coman and Poletsky on polynomial type inequalities on transcendental curves in \mathbb{C}^2 .

October 3, 10:15

Aron Lagerberg (Göteborg): *Generalized Lelong Numbers (part II).*

Abstract: Classical Lelong numbers can be perceived as a generalization of the multiplicity of a zero of an holomorphic function, and were introduced by Pierre Lelong in the late 50's. One of the deep results concerning Lelong numbers is the ?Siu analyticity theorem?, proved

in 1974, which roughly states that the upper level sets of the Lelong number corresponding to a (plurisubharmonic) function, is analytic.

I will describe a fruitful generalization of the Lelong numbers, due to Jean-Pierre Demailly, as well as some classical results in this new setting. Also, I will show how one can prove Siu's theorem using this Generalized Lelong number, following a proof of Demailly from 1987.

September 19, 10:15

Aron Lagerberg (Göteborg): *Generalized Lelong Numbers.*

Abstract: Classical Lelong numbers can be perceived as a generalization of the multiplicity of a zero of an holomorphic function, and were introduced by Pierre Lelong in the late 50's. One of the deep results concerning Lelong numbers is the ?Siu analyticity theorem?, proved in 1974, which roughly states that the upper level sets of the Lelong number corresponding to a (plurisubharmonic) function, is analytic. I will describe a fruitful generalization of the Lelong numbers, due to Jean-Pierre Demailly, as well as some classical results in this new setting. Also, I will show how one can prove Siu's theorem using this Generalized Lelong number, following a proof of Demailly from 1987.

August 29, 10:15

Magnus Aspenberg: *Complex Dynamics and the Collet-Eckmann condition.*

Abstract: Complex Dynamics is the study of iterations of analytic functions. I will give a short introduction to the subject and focus on iteration of rational functions on the Riemann sphere and a discuss the so called Collet-Eckmann condition. The foundations of Complex Dynamics was laid in the beginning of the 20th century by P. Fatou and G. Julia. They divided the Riemann sphere into two sets, the Julia set where the dynamics is chaotic and the Fatou set, where the dynamics is tame. A major issue in the subject is to describe the parameter space for rational functions. The easiest type of rational maps to understand are the so called hyperbolic maps. They are conjecturally open and dense in the parameter space. The set of non-hyperbolic maps (i.e. the complement of the set of hyperbolic maps), is much more complicated to describe. The Collet-Eckmann (CE) maps are a special type of non-hyperbolic maps. Roughly CE-maps have the property that the derivative grows exponentially along critical orbits on the Julia set. The Julia set of CE-map has a nice structure and it is a conjecture that almost every non-hyperbolic map satisfies the CE-condition. Non-hyperbolic maps were shown to have positive Lebesgue measure by M. Rees in 1986. This result also follows from my thesis from 2004,

which states that the set of CE-maps has positive Lebesgue measure in parameter space of rational maps.

June 14, 13:15

Elin Götmark and Henrik Seppänen (Göteborg): *Viktade Koppelmanformler för linjebuntar över Grassmannmångfaldar.*

Abstract: Alla resultat är i samarbete med Håkan Samuelsson. Vi presenterar explicita viktade Koppelmanformler för linjebuntar över Grassmannmångfaldar. Resultaten bygger på den första författarens metod för att generera Koppelmanformler för en komplex mångfald, M , där man kan finna en holomorf vektorbunt över $M \times M$, med en sektion som definierar diagonalen. Vi ger även en kortfattad representationsteoretisk bakgrund till linjebuntarna som förekommer. Som en tillämpning visar vi försvinnandesatser för Dolbeault-kohomologigrupper för linjebuntarna. Ett specialfall av dessa är en variant av Borel-Bott-Weils sats som är ett klassiskt resultat i representationsteorin för kompakta Liegrupper.

May 10, 15:15

Mattias Jonsson (Ann Arbor): *Formal plurisubharmonic functions.*

May 9, 10:00

Bo Berndtsson (Göteborg): *The invariance of plurigenera, ett bevis av M. Paun.*

March 21, 10:15

Bo Berndtsson (Göteborg): *Bergman kernels and the pseudoeffectivity of relative canonical bundles (report on joint work with M. Paun).*

March 14, 10:15

Henrik Petersson (Göteborg): *Functional calculus for operators on non-normable spaces.*

March 7, 10:15

Håkan Samuelsson (Göteborg): *Regularizations of residue currents.*

February 21, 10:15

David Jacquet (Stockholm): *C -convex sets with C^1 -boundary.*

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January 17, 10:15

Elizabeth Wulcan (Göteborg): *Residue currents from resolutions of monomial ideals.*

February 10, 10:15

Mats Andersson (Göteborg): *Annihilators of Coleff-Herrera currents.*