NORDAN TOLV

Mariehamn, 18-20 april 2008

PROGRAM

Fredag 18 april

13.00 Lunch
14.00–14.45 Nessim Sibony
15.00–15.45 Elizabeth Wulcan
15.45 Kaffepaus
16.15–17.00 Gregery Buzzard
17.15–18.00 Léa Blanc–Centi
19.00 Middag, Hotell Arkipelag

Lördag 19 april

08.00–08.45 Frukost
09.00–09.45 László Lempert
10.00–10.45 Alexey Shchuplev
10.45 Kaffepaus
11.15–12.00 Berit Stensønes
12.15–13.00 Nikolay Kruzhilin
13.30 Lunch
16.00–21.00 Utflykt med middag

Söndag 20 april

08.00–08.45 Frukost
09.00–09.45 Mihai Paun
10.00–10.45 Elin Götmark
10.45 Kaffepaus
11.15–12.00 Yum-Tong Siu

TITLAR OCH SAMMANFATTNINGAR

Gregery Buzzard
Structural stability of hyperbolic Henon maps
(joint with Adrian Jenkins)

For C^1 diffeomorphisms of a compact manifold, the structural stability theorem implies that structural stability is equivalent to Axiom A plus the strong transversality condition. We prove an analog of one direction of this equivalence in the case of complex Henon maps: hyperbolicity implies global structural stability. The proof uses ideas of Robinson from the smooth case as well as holomorphic motions in one variable glued together to give a holomorphic motion in two dimensions.

Léa Blanc–Centi
On the Gromov hyperbolicity of the Kobayashi metric on strictly pseudoconvex regions in the almost complex case

The Kobayashi metric is an important biholomorphically invariant metric. Infinitesimally, it measures the size of holomorphic discs, and hence it is related with the problem of the biholomorphic equivalence between domains. The Kobayashi metric has been used in the study of holomorphic functions and function spaces of several complex variables, but its construction goes through the almost complex situation. Our aim is to look at the large scale structure of the Kobayashi metric. More precisely, we want to describe the global behaviour of geodesics.

It is quite difficult to get any information on the Kobayashi metric on a domain, since there is in general no explicit formula. Here, we focus on the case of some special domains in almost complex manifolds, namely, strictly J-convex regions. I begin by recalling some definitions of almost complex geometry, and by giving various estimates of the Kobayashi metric. I will then introduce the notion of δ-hyperbolicity in the sense of Gromov, which is a property of spaces which essentially takes the large scale point of view into consideration. Let us recall that a geodesic metric space is said to be δ-hyperbolic if the size of every geodesic triangle is less than δ. I prove that every bounded strictly J-convex region equipped with the Kobayashi metric is hyperbolic in the sense of Gromov. Finally, I apply this result to the study of the dynamics of pseudo-holomorphic maps.

László Lempert
Analytic sheaves in Banach spaces

In joint work with Imre Patyi we have recently introduced a type of sheaves in Banach spaces, that we called cohesive sheaves. Cohesive sheaves replace the all important class of coherent sheaves as one passes from analysis in finite dimensional spaces to infinite dimensional spaces. In the talk I will explain what cohesive sheaves and their main properties are.

Mihai Paun
On the invariance of plurigenera

We will discuss some recent extension theorems, in connection with the invariance of plurigenera.

Alexey Shchuplev
Residual kernels with singularities on coordinate planes

A finite collection of planes $\{E_\nu\}$ in $\mathbf{C}^d$ is called an atomic family if the top de Rham cohomology group of its complement is generated by a single element. A closed differential form generating this group is called a residual kernel for the atomic family. We construct new residual kernels in the case when E_ν are coordinate planes such that the complement $\mathbf{C}^d \setminus \bigcup E_\nu$ admits a toric action with the orbit space being homeomorphic to a compact projective toric variety. They generalize the well-known Bochner-Martinelli and Sorani differential forms. The central role in the construction is played by the theorem stating that under some assumptions a toric variety admits realisation as a complete intersection of toric hypersurfaces in an ambient toric variety.

Nessim Sibony
Exponential estimates for plurisubharmonic functions and applications to dynamics

Exponential estimates for plurisubharmonic functions with respect to Lebesgue measure are classical .We want to prove similar estimates for plurisubharmonic functions with respect to Monge-Ampère measures with Hölder continuous potential. As an application, we obtain several stochastic properties for the equilibrium measures associated to holomorphic maps on projective spaces. More precisely, we prove the exponential decay of correlations, the central limit theorem for general d.s.h. observables, and the large deviations theorem for bounded d.s.h. observables and Hölder continuous observables. If time permits we will indicate the connection with the theory of superpotentials. This is joint work with Tien-Cuong Dinh and Viêt-Anh Nguyên.

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