KASS 2008:

December 16, 10:15
Chin-Yu Hsiao (Göteborg): *On the singularities of the Bergman projection for $(0,q)$-forms.*

Abstract: In this work, we obtain the full asymptotic expansion of the Bergman projection for $(0,q)$ forms when the Levi form is non-degenerate. This generalizes a result of Boutet de Monvel and Sjöstrand for $(0,0)$ forms. We introduce a new operator analogous to the Kohn Laplacian defined on the boundary of a domain and we apply the heat equation method of Menikoff and Sjöstrand to this operator. We obtain a description of a new Szegö projection up to smoothing operators. Finally, by using the Poisson operator, we get our main result.

December 10, 10:15
Stefan Borell (Oslo): *The ball embedding property and the unit disc.*

Abstract: The ball embedding property of complex spaces is introduced. In lower codimensions, a certain kind of hyperbolicity is a necessity for a complex space to satisfy the ball embedding property. It follows e.g. that $\mathbb{C}$ does not satisfy the ball embedding property in $\mathbb{C}^2$. On the other hand, the open unit disc meets the hyperbolicity condition and we prove that it satisfies the ball embedding property in $\mathbb{C}^2$. Some of the results are part of a joint work with Frank Kutzschebauch.

November 26, 10:15
Erlend Fornaess Wold (Oslo): *Polynomial Convexity and Totally real manifolds.*

Abstract: We discuss generic properties of totally real manifolds.

October 8, 10:15
Bo Berndtsson (Göteborg): *Deformation av komplexa strukturer. (Efter Schumacher.)*

September 24, 10:15
David Witt Nyström (Göteborg): *From Complex to Convex.*

Abstract: Okounkov, and later Lazarsfeld and Mustata, have shown how to go from complex to convex geometry, by associating convex bodies, known as Okounkov bodies, to line bundles on complex manifolds. One can thereby use classical results like Brunn-Minkowski to

prove things about line bundles. We investigate this correlation further, by also taking into account the hermitian metrics on the line bundle, which quite naturally translate to convex functions on the Okounkov body. In the setting of toric manifolds, and thus specifically $\mathbb{P}^n$, this mapping corresponds to a Legendre transform.

September 10, 10:15
Robert Berman (Göteborg): *Convergence towards equilibrium of optimal interpolation nodes for multivariable 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, where we prove the multivariable generalization of this result, which settles a conjecture going back to Leja in the 50's. 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 multivariable case have also, somewhat surprisingly, appeared in the context of Kähler-Einstein geometry (in the work by Aubin, Yau, Dondalson and others).

September 3, 10:15
Mats Andersson (Göteborg): *The Briançon-Skoda theorem on a singular space.*

Abstract: Let Z be a germ of a (reduced) analytic space pure dimension. I will present an analytic proof of the uniform Briançon-Skoda theorem for the local ring $\mathcal{O}_Z$; this result is previously proved by Huneke by purely algebraic methods. For ideals with few generators we also get sharper results. It is a joint work with H Samuelsson and J Sznajdman.

March 25, 15:15 (Joint KASS and Analysis seminar)
Henrik Seppänen (Darmstadt): *Borel-Weil theory for root graded Lie groups.*

Abstract: The Borel-Weil-Bott theorem is a cornerstone in the representation theory of compact Lie groups and the corresponding geometry of homogeneous line bundles over compact flag varieties. Roughly speaking it gives a realization of any irreducible representation of a compact Lie group as the space of global holomorphic sections of a

homogeneous line bundle, and proves the vanishing of the higher cohomology. We consider a generalization to a class of finite-dimensional homogeneous complex manifolds which have algebraic similarities to compact flag varieties. It turns out that their geometry is related to the classical case in an interesting way. We use this geometric structure to characterize those line bundles which admit global holomorphic sections, and state a vanishing theorem for the higher cohomology groups. If time permits, we also indicate relations to a more algebraic approach to the corresponding representation spaces involving Weyl-modules. The talk is based on a joint project with Karl-Hermann Neeb.

February 22, 13:45 (Joint KASS and Analysis seminar)
Xiangyu Zhou (Peking): *Rigidity, envelopes of holomorphy and regularity in group actions.*

Abstract: I'll talk about some my recent results about rigidity of automorphism groups and regularity of $\bar{\partial}$-Neumann operator for invariant domains, which essentially use my early result on the univalence of envelopes of holomorphy in group actions.

January 10, 13:15
Nils Øvrelid (Oslo): *The $\bar{\partial}$-equation on singular spaces.*

Abstract: It will be survey of some recent work on solvability the $\bar{\partial}$-equation in L^2 spaces of forms on singular analytic varieties. Some results on finiteness of L^2 cohomology will be presented.

January 9, 10:15
Alekos Vidras (Cyprus): *Reconstructions of holomorphic functions in some domains $\mathcal{D}$ from their values on the arcs (or hyper-surfaces) which are part of the boundary $\partial\mathcal{D}$*

Abstract: For some cases of bounded domains $\mathcal{D}$ we describe the class of holomorphic functions which are representable by Carleman integral representation formula supported on a part M of the boundary $\partial\mathcal{D}$. It turns out that in some cases this leads to very simple criteria allowing to decide when $f \in L^1(M)$ is an angular boundary value function of some $\tilde{f} \in \mathcal{H}(\mathcal{D})$, with $\tilde{f}$ satisfying some growth conditions.