Several Complex Variables

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Articles:

- **Mihnea Colţoiu**, **Cezar Joiţa**: On the Parameterization of Germs of Two-Dimensional Singularities, Journal of Geometric Analysis **25** (2015), 2427–2435.
- **George-Ionuţ Ioniţă**: *q-completeness with corners of unbranched Riemann domains*, Kyushu Journal Of Mathematics, **69** (2015) 69–75.
- **George-Ionuţ Ioniţă**: *q-convexity properties of locally semi-proper morphisms of complex spaces*, Bulletin Of The Belgian Mathematical Society-Simon Stevin **22** 251–262.
- **Eugen Mihăilescu**, Mrinal Kanti Roychowdhury: *Quantization coefficients in infinite systems*, Kyoto Journal of Mathematics **55** (2015), 857–873.

Brief description of our results:

Mihnea Colţoiu, Cezar Joiţa: On the Parameterization of Germs of Two-Dimensional Singularities.

The main result of this article is the following theorem:

Let (X, x_0) be a germ of a 2-dimensional singularity which is irreducible at x_0 and let F be the exceptional divisor of the desingularization of X.
1) If there exists a normal isolated singularity (Z, z_0) with simply connected link and a surjective holomorphic map $f : (Z, z_0) \to (X, x_0)$, then all irreducible components of F are rational.
2) If all irreducible components of F are rational then there exists a surjective holomorphic map $f : (\mathbb{C}^2, 0) \to (X, x_0)$.

George-Ionuţ Ioniţă: q-completeness with corners of unbranched Riemann domains.

The Levi problem on singular spaces is one of the most important and difficult problems in several complex variables. For complex spaces with isolated singularities it was solved by Andreotti and Narasimhan who proved that if X is a Stein space with isolated singularities and $Y \subset X$ is a locally Stein open subset of X, then Y is Stein. This result was generalized by Coltoiu and Diederich and they showed that if $p : Y \to X$ is an unbranched Riemann domain between two complex spaces with isolated singularities such that X is Stein and p is a Stein morphism, then Y is also Stein.

In his article that appeared in Kyushu Journal Of Mathematics, George Ionita proved that if $p : Y \to X$ is an unbranched Riemann domain between two complex spaces with isolated singularities, if X is Stein and p is locally q-complete with corners,then Y is q-complete with corners. This result extends Coltoiu and Diederich's theorem mentioned above.

George-Ionuţ Ioniţă: q-convexity properties of locally semi-proper morphisms of complex spaces.

Let X and Z be two complex spaces. We say that a morphism $\pi : Z \to X$ semi-proper if Z is the disjoint union of some open spaces $Z = \bigcup_{m \geq 1} W^m$ such that the restrictions $\pi_{|W^m} : W^m \to X$ are proper morphisms. The morpism π is called locally semi-proper if every $x \in X$ has a neighbourhood U such that $\pi_{|\pi^{-1}(U)} : \pi^{-1}(U) \to U$ is semi-proper.

In this paper, G. Ioniţă proves that if $\pi : Z \to X$ is a locally semi- proper morphism and X is q-complete, then Z is $(q + r)$-complet, where r is the maximum of the dimension of the fibers of π.

This theorem extends several results obtained by de P. Le Barz, E. Ballico and V. Vajaitu.

Eugen Mihăilescu, Mrinal Kanti Roychowdhury: Quantization coefficients in infinite systems

In this article the authors investigate quantization coefficients for probability measures μ on limit sets, which are generated by systems $\mathcal{S}$ of infinitely many contractive similarities and by probabilistic vectors. The theory of quantization coefficients for infinite systems has significant differences from the finite case. One of these differences is the lack of finite maximal antichains, and another is the fact that the set of contraction ratios has zero infimum; another difference resides in the specific geometry of $\mathcal{S}$ and of its noncompact limit set J. It is proved that, for each $r \in (0, \infty)$, there exists a unique positive number κ_r, so that for any $\kappa < \kappa_r < \kappa'$, the κ-dimensional lower quantization coefficient of order r for μ is positive, and are given estimates for the κ' -upper quantization coefficient of order r for μ.