Several Complex Variables

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Articles:

• **M. Colţoiu**, **C. Joiţa**: *On the open immersion problem*, to appear in Mathematische Annalen.

• **E. Mihăilescu**: *Higher dimensional expanding maps and toral extensions*, to appear in Proceedings of the AMS.

• **M. Colţoiu**, N. Gaşiţoi, **C. Joiţa**: *On the image of an algebraic projective space.* Comptes Rendus Mathematique 350 (2012), no. 5-6, 239–241.

• **C. Joiţa**: *The disk property. A short survey.* An. Ştiint. Univ. "Ovidius" Constanţa Ser. Mat. 20 (2012), no. 2, 35–42.

Brief description of our results:

M. Colţoiu, C. Joiţa: On the open immersion problem.

We give two examples of complex spaces on which global holomorphic functions separate points and give local coordinates and they cannot be realized as open subsets of Stein spaces. The first one is an irreducible complex space of dimension 2 with isolated singularities and the second example is a complex space of dimension 2 with hypersurface non-isolated singularities, having infinitely many irreducible components but which is a covering space of an open subset of a Stein space and, additionally, we prove that it can be realized as closed analytic subset of an open subset of $\mathbb{C}^4$.

At the same time we notice that these examples are open subsets of Stein schemes, a notion introduced by H. Grauert. In the context of complex schemes we notice that by contracting a Nori string one obtains a complex scheme and not a complex space.

E. Mihăilescu: Higher dimensional expanding maps and toral extensions.

We prove that expanding endomorphisms on arbitrary tori are 1-sided Bernoulli with respect to their corresponding measure of maximal entropy and are thus, measurably, as far from invertible as possible; this applies in particular to expanding linear toral endomorphisms and their smooth perturbations. Then we study toral extensions of expanding toral endomorphisms, in particular probabilistic systems on skew products, and prove that under certain, not too restrictive conditions on the extension cocycle, these skew products are 1-sided Bernoulli too. We also give a large class of examples of group extensions of expanding maps in higher dimensions, for which we check the conditions on the extension cocycle.

M. Colţoiu, N. Gaşiţoi, C. Joiţa: On the image of an algebraic projective space

We prove that if X is a projective algebraic space, Y is a normal compact complex space and $p : X \to Y$ is a surjective morphism with equidimensional fibers then Y is also projective algebraic.

C. Joiţa: The disk property. A short survey

We present some results obtained over the years regarding the disk property for complex manifolds and its connections with pseudoconvexity.