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K-homology and birational geometry

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Let V be a smooth complex analytic manifold, with fundamental group π. An analog of the Novikov conjecture stated by J. Rosenberg says that the higher Todd classes of V are birationally invariant.

In a recent work, J. Block and S. Weinberger showed the birational invariance of the image in $K_0\big(C^*(\pi)\big)$ under the assembly map of the K-homology fundamental class. The proof is based on the Grotehdieck–Riemann–Roch theorem of Baum–Fulton–McPherson.

In this talk, by using bivariant K-theory, we shall obtain the invariance in analytic K-homology of the Hodge–Dolbeault operator under any birational morphism of smooth complex analytic manifolds. We use only analytic methods, and as result we recover the Block–Weinberger theorem.

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