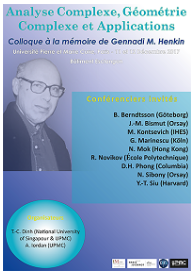

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NEW CURVATURE FLOWS IN NON-KÄHLER GEOMETRY

lundi 11 décembre 2017 09:30 (50 minutes)

Summary

We begin with some reminiscences about Henkin's 1969 solution of the dbar-equation, and its influence on kernel representations for the dbar-problem, especially the dbar-Neumann problem. This turned out to have wide ramifications in Fourier analysis, notably on the development of the theory of singular Radon transforms.

We turn next to a topic of current interest in complex geometry, which is curvature flows. A well-known flow is the Kähler-Ricci flow, which is a flow of (1, 1)-forms preserving the closedness property. Current problems from both physics and non-Kähler geometry lead to a flow which still preserves the closedness property, but which is rather a flow of (2, 2)-forms, called the Anomaly flow. Such flows pose some major challenges, and their study has barely begun. We discuss some illustrative cases, including the flows on fibrations over K3 surfaces, on fibrations over Riemann surfaces, and on unimodular Lie groups. This last case is noteworthy as it requires Bismut connections rather than Chern connections. The emphasis will be on the various PDE techniques to be developed.

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