A conjecture of Siu-Yau-Wu asserts that any open complete Kähler manifold $M$ with positive bi-sectional curvature is bi-holomorphic to the Euclidean complex space. Recall that the bi-sectional curvature is given by $B_M(X,Y) = \sec_M(X,Y) + \sec_M(X,JY)$, where $\{X,Y,JX,JY\}$ are orthogonal real tangent vectors, $J$ is the complex structure of $M$.

Thus, the condition of positive bisectional curvature is weaker than the condition of positive sectional curvature.

In this lecture, we present the following theorem:

**Theorem A** Let $M$ be a complete non-compact Kähler manifold with positive bi-sectional curvature. Then $M$ is diffeomorphic to the Euclidean complex space. (Received October 04, 2004)