Introduction to Kähler Manifolds Indranil Biswas Abstract

We will start by introducing the basic properties of Kähler metrics, including the existence of geodesic local coordinates. We will go on by proving the Kähler commutation relations from which we will deduce the Bochner-Kodaira-Nakano identity relating the $\bar{\partial}$ -Laplacian and the ∂ -Laplacian acting on scalar-valued forms and on vector bundle-valued forms. After discussing the basics of Hodge Theory of compact Kähler manifolds, including the Hodge decomposition and symmetry, we will cover certain topics involving projective manifolds and will prove the Kodaira Embedding Theorem.