

# ON BOTT-CHERN AND CHERN-SIMONS CHARACTERISTIC FORMS

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The refinement of the Chern-Weil theory for Hermitian holomorphic vector bundles naturally leads to secondary characteristic forms, introduced by R. Bott and S.S. Chern in 1964. These forms play an important role in the arithmetic intersection theory and geometric stability. In the smooth category, secondary forms were introduced by S.S. Chern and J.H. Simons in 1974, and have numerous applications in mathematics and theoretical physics. In this lecture I will review the old and recent results on secondary characteristic forms. In particular, we will discuss the ‘double descent’ construction, associated with the Chern-Weil theory for Hermitian vector bundles, and the method for computing characteristic forms ‘explicitly’.