

Meeting: 1007, Santa Barbara, California, SS 8A, Special Session on Geometry and Physics

1007-53-68 **Hao Fang*** (haofang@ias.edu), School of Mathematics, IAS, Einstein Drive, Princeton, NJ 08540, **Zhiqin Lu**, Irvine, CA, and **Ken-Ichi Yoshikawa**, Tokyo, Japan. *Analytic torsion near singular Calabi-Yau three-folds*. Preliminary report.

We construct a holomorphic invariant for the Calabi-Yau three-folds and study its asymptotic behavior near singular Calabi-Yau three-folds, especially Calabi-Yau varieties with only one ODP singularity. As a consequence, we prove a current curvature formula for a large class of Calabi-Yau moduli and discuss its application to number theory and mathematical physics. (Received January 30, 2005)