Abstract Submitted
for the APR08 Meeting of
The American Physical Society

Heterotic Phenomenology of $SU(3)$ Manifolds TIBRA ALI, GERALD CLEAVER, Baylor University — Incorporating the effects of flux compactifications, such as moduli fixing and supersymmetry breaking, in the $E_8 \times E_8$ heterotic string theory is an important problem both from the theoretical and phenomenological points of view. Since there is a dearth of fluxes in heterotic strings, one way of including fluxes is by considering the internal manifold to be a six dimensional $SU(3)$ manifold. In this talk we focus mainly on a subclass of $SU(3)$ manifolds known as half-flat manifolds. First we consider the ten dimensional solution of the form $R^{1,2} \times Z_7$, where $R^{1,2}$ is a three dimensional Minkowski space-time and Z_7 is a non-compact G_2 holonomy manifold. Half-flat manifolds can be thought of as hypersurfaces in Z_7, and the above construction then implies that the four dimensional effective action that follows from compactification on a half-flat manifold breaks the $E_8 \times E_8$ group down to $E_6 \times E_8$, as in the standard embedding on Calabi-Yau compactifications. Recently, this result was also found by Gurrieri, Lukas and Micu independently using a different approach. In this talk we shall present aspects of the low-energy effective action emphasizing the ten dimensional geometric origin. We shall conclude by mentioning some observations about extending our methods and results to more general $SU(3)$ manifolds.

Tibra Ali
Baylor University

Date submitted: 16 Jan 2008 Electronic form version 1.4