1072-14-206   **Mboyo Esole*** (`esole@math.harvard.edu`), Department of Mathematics, Harvard University, 1 Oxford Street, Cambridge, MA 02138. *Small resolutions of SU(5) models in F-theory.*

We provide an explicit desingularization and study the resulting fiber geometry of elliptically fibered (Calabi-Yau) fourfolds defined by a Weierstrass model admitting a split $\tilde{A}_4$ singularity over a divisor of the discriminant locus. Such varieties are used to geometrically engineer SU(5) Grand Unified Theories in F-theory. We also discuss several transitions between different resolutions and their physical meaning. (Received June 28, 2011)