TOWARDS CONSTRUCTING NEW SOLUTIONS FOR THE HULL-STROMINGER SYSTEM

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ABSTRACT. A lot of recent attention to the non-Kähler complex geometry is due to the developments in Physics related to Hull-Strominger system. This system is the set of equations that are necessary and sufficient conditions for spacetime supersymmetry. One of the solutions with a significant impact on the further developments of the non-Kähler geometry was due to Fu-Yau. The solutions were constructed on principal torus bundles over K3 surfaces. This result was later extended by Anna Fino, Gueo Grantcharov, and Luigi Vezzoni to singular K3 surfaces with singularities of type A_1. In this talk we present the first steps towards generating solutions over K3 surfaces with singularities of type A_n which mostly involve understanding the intersection theory of the singular K3 surfaces over partial resolutions of their singularities.