1054-14-231 **Charles F Doran*** (doran@math.ualberta.ca), Edmonton, AB , Canada. *Normal Forms for K3 Surfaces and the Kuga-Satake Hodge Conjecture via Mirror Symmetry.* Preliminary report.

The Kuga-Satake abelian variety of a given lattice-polarized K3 surface is constructed transcendentally from the data of the polarizing lattice. It is extremely difficult to determine the simple components of this abelian variety in general, even when a nice algebraic normal form is known for the K3 surfaces.

The *Kuga-Satake Hodge Conjecture* posits the existence of an algebraic correspondence between lattice-polarized K3 surfaces and their associated Kuga-Satake abelian varieties. We use normal forms for lattice-polarized K3 surfaces realized as anticanonical hypersurfaces in Gorenstein toric Fano threefolds and mirror symmetry for both these K3 surfaces and for curves of genus ≥ 1 to explore the conjecture. (Received September 14, 2009)