1016-82-143 **Eric W Kuennen*** (kuennene@uwosh.edu), University of Wisconsin Oshkosh, 800 Algoma Blvd., Oshkosh, WI 54901, and **C Y Wang**. *A 3D Off-lattice Radial Eden Cluster Growth Model.*

A large variety of phenomena are associated with rough surface propagation, e.g. fluid flow in a porous medium, colloid aggregation, electron deposition, and bacterial growth. In 1961, Eden introduced a discrete stochastic growth model for tumor growth, which has become a standard model for describing the propagation of rough surfaces. The original model was 2-dimensional and used a square lattice. In two dimensions, the self-affine scaling of the surface is known to place the Eden model in the KPZ universality class. However, the growth behavior of 3D Eden clusters, and of the 3D KPZ equation, is less well understood. The matter of determining which growth phenomena belong to the KPZ universality class in three dimensions is an important unsolved problem in statistical physics.

In this paper, a new 3D Eden model is proposed, that grows clusters off-lattice and using a new radial geometry. An analysis of self-affine scaling of the surface, including a noise-reduction technique, indicates a growth exponent of $\beta \approx 0.12$, suggesting that 3D off-lattice radial Eden growth may not belong to the KPZ universality class. (Received February 09, 2006)