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Oleksandr Misiats* (omisiats@purdue.edu), 150 N University str, West Lafayette, IN 47907,
and **Aaron Yip**. *Analysis of a discrete curvature-driven flow*.

In this talk, we consider a semi-discrete version of Bence et.al. approximation to mean curvature flows. In particular, we study the evolution of the level curves of a continuous in time and discrete in space heat equations, which are reinitialized after short time steps. We prove that in the subcritical case, when the reinitilazation step t is asymptotically much larger than the space step h , the scheme is convergent to a classical mean curvature motion. We next derive the flow velocity in the critical case $t \approx h$, which is essentially different from mean curvature, yet exhibits a nonlinear dependence on the curvature. In the supercritical case $t \ll h$ we show the velocity is identically 0. The transition between the critical and subcritical cases is also studied in the work. (Received February 10, 2014)