

Meeting: 1003, Atlanta, Georgia, SS 9A, AMS-MAA-SIAM Special Session on Research in Mathematics by Undergraduates, I

1003-70-174 **Prince Chidyagwai*** (chidyagp@lafayette.edu), Box 7688, Farion Center, Lafayette College, Easton, PA 18042, and **Clifford A Reiter** (reiterc@lafayette.edu), Department of Mathematics, Lafayette College, Easton, PA 18042. *A Local Cellular Model for Growth on Quasicrystals.*

The growth of real valued cellular automata using a deterministic algorithm on 2-dimensional quasicrystalline structures is investigated. Quasicrystals are intermediate between the rigid organization of crystals and disorganized random structures. Since the quasicrystalline structures may be highly symmetric or not, we are able to obtain highly organized and relatively random growth patterns. This deterministic growth produces dendrite, sector, stellar, regular polygons, round, and random DLA-like structures. (Received August 18, 2004)