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**Casey Mann\*** (cmann@uttyler.edu), 3900 University Blvd, Tyler, TX 75799, and **Bobby Thomas** (theartremse@gmail.com), 3900 University Blvd, Tyler, TX 75799. *Heesch numbers of polyforms with marked edges*. Preliminary report.

The *Heesch number* of a tile is the maximum number of layers of tiles which can completely surround a centrally placed copy of the tile. To date, tiles with Heesch numbers 0 through 5 are known. It is unknown if tiles with higher Heesch numbers exist or if an upper bound on Heesch numbers exists. Polyforms with appropriately marked edges are a particularly rich source with regard to Heesch numbers. Indeed, they provide examples of tiles with Heesch numbers 0, 1, 2, 3, 4, and 5. This suggests that such tiles need to be studied in more detail.

In this talk, we discuss the findings of our computer program which computes the Heesch numbers of lower order polyforms with marked edges. We focus on the special case where some or all of the edges of the polyform are marked with “bumps” and “nicks.” If a given polyform has  $n$  boundary edges, then there are  $3^n$  possible markings of this tile (many of which may be combinatorially equivalent); thus, for any one given polyform, there can be a vast number of different markings, and so the need for restricting to lower order polyforms is required. (Received December 11, 2006)