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**Michael A Jackson\*** (majackson@gcc.edu), 100 Campus Drive, Grove City College, Grove City, PA 16127. *Geometric triangulation of interior polytope number sequences*. Preliminary report.

Polytope numbers are figurate number sequences created from the geometry of polytopes. Building on the classical work of polygonal numbers, H.K. Kim has recently outlined a method for computing the polytope number sequence for any convex uniform polytope. In addition, Kim found the sequences for the regular polytopes and showed that every  $d$ -dimensional regular polytope number sequence can be written as a linear combination of  $d$ -dimensional simplex number sequences with nonnegative integer coefficients. Joon Yop Lee has extended this to show that for any uniform polytope there exists such a linear combination with nonnegative coefficients using a pointed triangulation of the polytope from which the sequence is created. In this talk, we will go over a proof of Lee's result using the geometry of the polytopes. We will use this proof to show that the interior number sequence for a given polytope is also a linear combination of simplex number sequences with the same nonnegative integer coefficients in the reverse order. (Received July 17, 2011)