Michigan Math Club

WEAR A MASK

Thursday at 4pm in EH1360
Free pizza and pop afterwards!

Counting points in polytopes

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Draw a shape on a sheet of graph paper and count all the grid points that lie inside your shape. Now enlarge your shape by a factor of 2 and count all the grid points in this larger shape. Now enlarge by 3 and count again. Is there any way to predict how many grid points will lie in your shape after you enlarge it by a factor of t?

We will show the surprising fact that this number is given by a polynomial in t for a large class of shapes.

Time permitting, we'll show how you can find the area of a 2-dimensional polygon just by counting the number of grid points in the shape and on its boundary.