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Alexander M. Kasprzyk, Maximilian Kreuzer and Benjamin Nill*

(nill@math.fu-berlin.de), Arnimallee 3, 14195 Berlin, Germany. *Bounds on lattice polygons and the classification of toric log Del Pezzo surfaces.*

We study lattice polygons containing the origin in their interiors. Astonishingly, even for these simple objects elementary questions are still open. In this talk, we give an upper bound on the area that depends cubically on the maximal lattice distance of the origin from the facets. The most interesting case occurs when all the vertices are primitive lattice points. In this situation there is a one-to-one correspondence to toric log Del Pezzo surfaces, which was used to give a complete classification of these varieties up to Gorenstein index < 17 . (Received March 02, 2009)