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Alexander Mieczyslaw Kasprzyk* (kasprzyk@unb.ca), Department of Mathematics and Statistics, University of New Brunswick, Fredericton, NB E3B 5A3, Canada. *A hierarchy of polytopes: toric Fano varieties.*

It is well-known that there is an equivalence between toric Fano varieties and certain lattice polytopes. In particular, conditions such as being smooth, Gorenstein, terminal, or canonical are easily recognised under this equivalence. This reduces the problem of classifying certain toric Fano varieties to a purely combinatorial argument.

In this brief talk I hope to sketch the equivalence between polytopes and varieties, describe what classifications are known, and mention some general bounds on vertices and boundary lattice points. I shall also highlight some embarrassing gaps in our understanding of the canonical case. (Received February 26, 2007)