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Fiammetta Battaglia and **Dan J. Zaffran*** (dzaffran@fit.edu). *Foliations modeling nonrational toric varieties.*

It is well known that to any rational fan (a convex geometric object), one can associate a toric variety (a complex geometric object) whose Betti numbers and cohomology ring reflect the fan combinatorics.

We show how “vector configurations” (a convex geometric object) and so-called “LVMB-manifolds” (a complex geometric object) provide a way to drop the rationality condition. In particular, toric varieties become part of a larger, continuous family of geometric objects.

LVMB-manifolds are known non-Kähler complex manifolds that come with a holomorphic foliation. The toric varieties’ Betti numbers are replaced with the foliation’s “basic Betti numbers”, that we compute. We also show how to apply the hard Lefschetz theorem in the nonrational context. These results give evidence that the rich interplay between convex and complex geometries embodied by toric varieties carries over to our nonrational construction. (Received September 22, 2015)