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**Ata Firat Pir\*** (atafirat@math.tamu.edu). *Irrational Toric Varieties*.

Toric varieties form an important class of algebraic varieties that are among the simplest objects in algebraic geometry. In classical theory normal toric varieties are given by rational fans in  $\mathbb{R}^n$ . Motivated by applications, we construct a theory of irrational toric varieties associated to arbitrary fans in  $\mathbb{R}^n$ . These are  $\mathbb{R}^n$ -equivariant cell complexes dual to the fan and generalize the nonnegative part of a classical toric variety. Among the pleasing parallels with the classical theory is that the space of degenerations of a projective irrational toric variety is homeomorphic to the secondary polytope of a point configuration. (Received February 19, 2018)