



Eulerian digraphs and toric Calabi-Yau varieties

<http://www.firstlight.cn> 2010-11-30

We investigate the structure of a simple class of affine toric Calabi-Yau varieties that are defined from quiver representations based on finite eulerian directed graphs (digraphs). The vanishing first Chern class of these varieties just follows from the characterisation of eulerian digraphs as being connected with all vertices balanced. Some structure theory is used to show how any eulerian digraph can be generated by iterating combinations of just a few canonical graph-theoretic moves. We describe the effect of each of these moves on the lattice polytopes which encode the toric Calabi-Yau varieties and illustrate the construction in several examples. We comment on physical applications of the construction in the context of moduli spaces for superconformal gauged linear sigma models.

[存档文本](#)