1146-13-177 **Michael C Loper***, 206 Church St. SE, Minneapolis, MN 55455. *What Makes a Complex Virtual.*

Let S be the Cox ring of a smooth toric variety and B be the irrelevant ideal. In 2017, Berkesch, Erman, and Smith introduced virtual resolutions for toric varieties as an analogue of minimal free resolutions for projective varieties. Virtual resolutions are complexes of free S-modules that allow B-torsion homology. I will name two algebraic conditions that determine whether a bounded chain complex of free S-modules is a virtual resolution. This theorem is similar to the depth criterion of exactness that Buchsbaum and Eisenbud published in 1973. We will also see that for projective varieties the criterion of exactness and the criterion of virtuality coincide for short complexes. (Received January 21, 2019)