1176-13-299 **Justin Chen*** (justin_chen2@brown.edu). *Decomposing multigraded modules.* Preliminary report.

For a polynomial ring in n variables over a field, the theory of monomial ideals is a rich source of interplay between combinatorics and commutative algebra; however the analogous story for multigraded (i.e. $\mathbb{N}^n$-graded) modules is substantially less studied. I will discuss some basics of multigraded modules, such as canonical generators, detecting when a module is multigraded, irreducibility, and primary decomposition. (Received January 25, 2022)