

1166-13-144

Lauren Cranton Heller and **Mahrud Sayrafi*** (mahrud@umn.edu), 557 Vincent Hall, 206 Church St SE, Minneapolis, MN 55455. *Computing Multigraded Castelnuovo-Mumford Regularity on Products of Projective Spaces*. Preliminary report.

Motivated by toric geometry, Maclagan-Smith defined the multigraded Castelnuovo-Mumford regularity for modules over the Cox ring of a simplicial toric variety. While this definition reduces to the usual regularity for saturated modules on \mathbb{P}^n , many properties of the classical regularity are not yet known to be true in the multigraded case. An algorithm exists for computing multigraded regularity on products of projective spaces using Tate resolutions. We discuss techniques that use virtual resolutions and resolutions of truncations to limit the range of cohomology modules necessary for the results to be accurate. (Received February 16, 2021)