1171-13-91   **Mark E Walker*** (`mark.walker@unl.edu`), **Srikanth B Iyengar** and **Linquan Ma**. *On the cone of Betti tables for a singular ring.* Preliminary report.

Let k be a field and R a standard graded k-algebra. When R is a polynomial ring, "Boij-Soderberg Theory" (developed by Boij, Eisenbud, Erman, Schreyer, Soderberg, and others) gives a description of the rational cone spanned by the Betti tables of finitely generated graded R-modules. We give extensions of these results to other graded rings. For instance, we prove the following:

When the characteristic of k is prime and R is any Cohen-Macaulay standard graded k-algebra, then the cone of Betti tables of graded R-modules of finite length and finite projective dimension coincides with that for a polynomial ring of the same dimension.

We also have results for complexes of graded modules, which include the case when R is not Cohen-Macaulay.

Eisenbud and Erman have previously established results such as these under the assumption that the associated projective scheme Proj(R) admits an Ulrich sheaf. The central technique we use is the notion of a lim Ulrich sequence of graded R-modules. In prime characteristic, such sequences exist by a theorem of Ma. (Received August 08, 2021)