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Christine Berkesch, Daniel Erman* (derman@math.stanford.edu), **Manoj Kummini** and **Steven V Sam**. *Poset Structures in Boij–Söderberg Theory: I - Modules with pure resolution.*

We look at the partial order of degree sequences of Cohen–Macaulay modules with pure resolution. We show that for two degree sequences $d = (d_0, \dots, d_n)$ and $d' = (d'_0, \dots, d'_n)$ in $(\mathbb{Z} \cup \{\infty\})^{n+1}$, $d_i \leq d'_i$ for all i if and only if there exist modules finitely generated Cohen–Macaulay modules M and M' with pure resolutions of type d and d' , respectively, such that $\text{Hom}(M', M)_{\leq 0} \neq 0$. This provides an interpretation of the partial order on degree sequences in terms of homomorphisms, thus suggesting that the partial order and the Boij–Söderberg decomposition of the cone of Betti tables are natural. (Received September 01, 2010)