



Algebra/Topology Seminar

TIMOTHY CLARK

Loyola University Maryland

RIGID MONOMIAL IDEALS: POSETS AND RESOLUTIONS

Thursday, November 10, 2011

1:15 p.m. in ES-146

(tea & coffee at 12:45 p.m. in ES-152)

ABSTRACT. In joint work with Sonja Mapes, we investigate the class of rigid monomial ideals. We show that the ideals in a particular subclass of rigid monomial ideals are lattice-linear and thus have a minimal poset resolution. In turn, we use this result to give a description of the minimal free resolution of a larger class of rigid monomial ideals by using $L(n)$, the lattice of all lcm-lattices of monomial ideals on n generators. By fixing a stratum in $L(n)$ where all ideals have the same total Betti numbers, we show that rigidity is a property which is upward closed in $L(n)$. Therefore, the minimal resolution of a rigid ideal contained in a fixed stratum can be constructed by relabeling the minimal resolution of a lattice-linear rigid ideal contained in said stratum. In ongoing work, we work towards the construction of a minimal resolution of an arbitrary rigid ideal by focusing on an appropriate subposet of the lcm-lattice.

This talk will be accessible to graduate students.