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Sonja Mapes* (smapes1@nd.edu), 255 Hurley Hall, Notre Dame, IN 46556, and **Timothy Clark**. *The Betti Poset in monomial resolutions.*

Finite atomic lattices, which arise as the lcm-lattice of a monomial ideal, play an important role in studying free resolutions of monomial ideals. In this talk we will discuss the Betti Poset which is a special subset of the lcm-lattice associated to a monomial ideal. In the case of rigid monomial ideals, we use the data of the Betti poset to explicitly construct the minimal free resolution. Subsequently, we introduce the notion of rigid deformation, a generalization of Bayer, Peeva, and Sturmfels' generic deformation. (Received February 15, 2016)