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**Sonja Mapes\*** ([smapes@math.duke.edu](mailto:smapes@math.duke.edu)), Mathematics Department, 117 Physics Bldg, Box 90320, Durham, NC 27708. *LCM lattices and resolutions of monomial ideals.*

It is known that monomial ideals which have equivalent LCM lattices also have equivalent minimal free resolutions. It has also been shown that any finite atomic lattice  $L$  is an LCM lattice of a monomial ideal. The purpose of this talk is to discuss how to use this coordinate free approach to study the structure of minimal resolutions of monomial ideals. In particular, I will focus on how the parameter space of all such lattices is of use. (Received April 10, 2010)