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**Geir Agnarsson** (geir@math.gmu.edu), George Mason University, Fairfax, VA 22030, and **Neil Epstein\*** (nepstei2@gmu.edu), George Mason University, Fairfax, VA 22030. *Reconstructing a monomial ideal from its socle.*

Let  $S$  be a finite set of monomials in  $k[x_1, \dots, x_d]$ ,  $k$  a field, such that no element of  $S$  divides any other. We show that there is a unique finite colength monomial ideal  $I$  whose socle is generated by  $S$ . This is done by analyzing the lattice structure of the monoid  $\mathbb{N}^d$ . We then use this to analyze zero-dimensional monomial ideals with small type, and we note that uniqueness is lost if the finite colength assumption is dropped. (Received February 08, 2018)