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Donald Spector* (spector@hws.edu), Department of Physics, Hobart and William Smith Colleges, Geneva, NY 14456. *The Shape of Things to Come: Structures Hidden within Shape Invariant Systems.*

Shape invariance is a property that arises in exactly soluble quantum mechanical systems. This talk presents recent work that establishes that the proper setting for shape invariance is in the context of an extension to centrally extended supersymmetry. This algebra is clearly not the full story, however; the resulting spectra are indicative of further structures, which this talk also explores. The consideration of these spectra leads to a preliminary picture for understanding the geometrical origin of shape invariance in terms of operators on compact target spaces, while also providing a natural framework for establishing the integrability of shape invariant systems. Illuminating these structures hidden within shape invariance should provide a basis for understanding the broader relevance of shape invariance to supersymmetric systems. (Received September 19, 2005)