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**Kristen Courtney\*** (kc2ea@virginia.edu), University of Virginia. *Elements of algebras of operators that attain their norm in a finite-dimensional representation.*

Given a norm-closed involutive algebra of bounded operators on an infinite-dimensional Hilbert space, one can use information about its finite-dimensional irreducible representations to study its structural properties. In fact, its structure can be completely determined by these representations when the norm of every element is equal to the supremum of its norms under such representations. We show that the abundance of elements in the algebra for which this supremum is achieved corresponds directly to the abundance of these representations of the algebra. In particular, this subset is dense if and only if the algebra has a separating family of finite-dimensional irreducible representations. Moreover, this subset is the whole space precisely when every irreducible representation of the algebra is finite-dimensional. This is joint work with Tatiana Shulman.

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