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*Prime spectra of 2-categories and categorification of open Richardson varieties*

We will describe a general theory of prime, completely prime, semiprime, and primitive ideals of monoidal categories, and more generally of 2-categories. These notions extend Balmer's theory of spectra of tensor triangulated categories, which deals with the symmetric/braided case. The notions provide a bridge between prime spectra of noncommutative rings and total positivity. As an application we obtain categorifications of the coordinate rings of Richardson varieties for arbitrary symmetric Kac-Moody algebras. This is a joint work with Kent Vashaw (LSU).