"Superconformal Index and Gauge/Gravity Duality"

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Abstract

The superconformal index of the quiver gauge theory dual to type IIB string theory on the product of an arbitrary smooth Sasaki-Einstein manifold with five-dimensional AdS space is calculated both from the gauge theory and gravity viewpoints. We find complete agreement. Along the way, we will see that the index on the gravity side can be expressed in terms of the cohomology of the Sasaki-Einstein manifold and that the index of a quiver gauge theory can be expressed in terms of the Euler characteristic of the cyclic homology of an algebra associated to the quiver.