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# Novel exact results and new indices for supersymmetric theories in three dimensions

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We discuss special subsectors of protected operators appearing in quantum field theories with extended supersymmetry defined on a general class of three-dimensional manifolds. Correlators of such BPS operators are generated by a one-dimensional Gaussian model obtained from localization and turn out to be topological as well as strongly dependent on the global features of the original 3-manifold. Furthermore, we show how extending localization techniques to backgrounds with orbifold singularities leads to novel types of supersymmetric indices, generalizing superconformal and topologically twisted indices. In particular, these new observables are relevant for the microstate counting of the recently constructed supersymmetric and accelerating black holes in four-dimensional Anti-de Sitter space-time.

**Presenter:** PITTELLI, Antonio (Università di Torino)