



Contribution ID: 12

Type: **Short talk**

SUSY enhancement on the squashed three-sphere

Tuesday, November 23, 2021 11:40 AM (20 minutes)

In this talk, I will discuss mass deformed $\mathcal{N} = 2$ theories on the squashed three-sphere. By embedding all the background fields into an extended supergravity I show how fine-tuning the mass leads to an enhancement of the supersymmetry to $\mathcal{N} = 4$. In the case where the 3d partition function is a limit of a 4d index only states annihilated by additional supercharges contribute to the 4d index at these specific mass points. The enhanced supersymmetry leads to simplifications of the localized partition function. Notably we can use it to explain the recently observed squashing independence of the free energy in mass deformed ABJ(M) theory. I will report on ongoing work on $\mathcal{N} = 4$ dualities on the squashed three-sphere.

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