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Superconformal index and supersymmetry enhancement of S-fold theories

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Recently concrete models of 4d N=3 superconformal field theories called S-fold theories are constructed by Garcia-Etxebarria and Regalado. Although it is difficult to study these theories due to the lack of the Lagrangian description and the strong coupling, it is expected that there is a non-trivial supersymmetry enhancement for rank one and two theories by Aharony and Tachikawa. In this poster, we evaluate the first non-trivial finite rank corrections to the superconformal index of these theories by using AdS/CFT correspondence and check the supersymmetry enhancement. To evaluate the index in finite rank, we mainly focus on the D3-branes wrapping a non-trivial three cycle on AdS side interpreted as Pfaffian-like operators on CFT side. We see that our results agree with the results expected from the supersymmetry enhancement.

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