No.202450

Academic Presentations in Physics
物理学系列学术报告

报告题目： **Exact large N expansion of mass deformed ABJM theory on squashed sphere**

报 告 人： Naotaka Kubo 助理研究员

报告时间： 2024年12月3日（星期二）上午 11:00

报告地点： 长安校区物理楼852

报告摘要：

We studied the partition function of the mass deformed ABJM theory on a squashed three sphere. In particular, we focused on the case with the Chern-Simons levels being and apply a duality between this theory and the super Yang-Mills theory with an adjoint hypermultiplet and a fundamental hypermultiplet. For a special mass parameter depending on the squashing parameter, we found that the partition function can be written as that of an ideal Fermi gas with a non-trivial density matrix. By studying this density matrix, we analytically derived the all order perturbative expansion of the partition function in , which turns out to take the form of the Airy function. Our results not only aligned with previous findings and conjectures but also led to a new formula for the overall constant factor of the partition function. We also studied the exact values of the partition function for small but finite values of .

报告人简介：

Naotaka Kubo

2021在日本京都大学汤川研究所获得博士学位

2021-2022汤川研究所JSPS fellow

2022年加入天津大学理学院任助理研究员。

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