

Recently a new class of superconformal field theories is proposed as a novel model for the AdS/CFT duality or the gauge/gravity correspondence [1]. The new class is given by three-dimensional  $\mathcal{N} = 6$  superconformal Chern-Simons-matter theories, with gauge groups  $U(N) \times U(N)$  and the Chern-Simons level number  $k$ . At large  $N$  these theories are conjectured to be dual to  $M$ -theory on  $AdS_4 \times S^7/Z_k$  (for  $k \ll N^{1/5}$ ). This new model, the so-called ABJM model, named after the authors of [1], provides a new method to analyze non-perturbative properties of gauge theories in relation to their corresponding gravity theories in a way that is substantially the same as the well-known large  $N$  analysis of the four-dimensional  $\mathcal{N} = 4$  super Yang-Mills theory.

Naturally there has been a lot of attention to the ABJM model. For example, in [2] generalization of the model with modified gauge groups  $U(N_1) \times U(N_2)$  ( $N_2 \geq N_1$ ) has been carried out. Also in [3, 4, 5] the so-called half-BPS operators of the ABJM model are analyzed and these are interpreted as giant graviton operators in the corresponding gravity theory.

This article under review is to be understood along the lines of these developments on the ABJM model. Particularly in this article the authors compute correlation functions of the giant graviton operators, applying the techniques developed in [6] to the modified gauge groups  $U(N_1) \times U(N_2)$ . The computations are made in the large  $(N_1, N_2)$  limit for trivial as well as non-trivial (with multi-genus) backgrounds. The authors also present appropriate large- $(N_1, N_2)$  expansion parameters. These results are in accord with previous studies in literature.

## References

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