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Finite N AdS/CFT correspondence for abelian and non-abelian orbifolds, and gauge coupling unification. (English) [Zbl 1036.81028](#)

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Summary: Although the AdS/CFT correspondence is rigorous only for an infinite $N \rightarrow \infty$ stack of D3-branes, it can be fruitfully studied for finite N as a source of gauge structures and choices for chiral fermions and complex scalars which solve the hierarchy problem by a conformal fixed point. We emphasize orbifolds $\text{AdS}_5 \times S^5/\Gamma$ where the resulting GFT has $\mathcal{N} = 0$ supersymmetry. The fact that the complex scalars are prescribed by the construction limits the possible spontaneous symmetry breaking. Both Abelian and non-Abelian Γ are illustrated by simple examples. An accurate $\sin^2 \theta$ in electroweak unification can be obtained, suggesting that this approach merits further study.

MSC:

- 81T30** String and superstring theories; other extended objects (e.g., branes) in quantum field theory
- 83E30** String and superstring theories in gravitational theory
- 81T40** Two-dimensional field theories, conformal field theories, etc. in quantum mechanics

Full Text: [DOI](#) [arXiv](#)

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