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Title: Symmetry breaking and the Ads/cft correspondence

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Abstract:

My thesis is focused on symmetry breaking and its manifestation in holography. In the first part of my thesis, I explored spontaneous symmetry breaking in field theories - classical and quantum. I studied the Large N limit in detail - both vector and matrix models, and researched the symmetry breaking scenario in the vector  $\phi$  4 model. I also attempted to study the symmetry breaking scenario of a simpler version of the BFSS model and its interesting saddle points. The second part of my thesis focused on the AdS/CFT correspondence where I studied the basics of the theory and applied the concepts to study phase transitions in various geometries with appropriate counterterms obtained from holographic renormalization. I have also used Fefferman-Graham method to compute the stress energy tensor for boundary theories and delved into chiral symmetry breaking using D7 brane probes.

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