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Large N Double Scaling Limits in 4d Supersymmetric Gauge Theories and Matrix Models

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Abstract

We study the large N limit of a class of 4d susy gauge theories using the Dijkgraaf-Vafa Matrix Model correspondence. The low-energy description breaks down in the proximity of singular points in the parameter space where some baryonic states become light. A large N double scaling limit prescription cures the singularity and we propose that the resulting dynamics has a dual description given by an exactly solvable non-critical string background.