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Max Hubner: M2-Branes, Local G2 Manifolds and a Colored Quantum Mechanics

Tuesday, August 18, 2020 5:00 AM (25 minutes)

Abstract: We consider local G2 manifolds which are ALE fibered over compact 3-manifolds X. M-theory on such spaces is well approximated by 7d SYM theories whose supersymmetric vacua are determined by a Hitchin system on X. We probe this system with a colored quantum mechanics and reformulate the compactification integrals on X as amplitudes of the QM. Euclidean M2-brane instantons are found to be in one to one correspondence with generalized instantons of the QM. We use this correspondence to study and compute their non-perturbative contributions to the 4d superpotential.