Swampland Conjectures in the High Temperature Phase of Quantum Gravity

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The intuition for the swampland conjectures often derives from perturbative string theory. It is important to challenge their viability in other regimes like strong coupling or high temperature. Continuing previous work, we make an attempt to study swampland conjectures in the largely unknown high energy/temperature phase of string theory. Concretely, we analyze AdS and dS swampland conjectures in a three-dimensional higher spin theory with self-interacting matter, which contains conformal gravity and is almost topological. A theory of a similar type was proposed as the effective theory in the high energy phase of non-critical M-theory in 3D.

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