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# Marten Reehorst ” Bootstrapping the Simplest Deconfined Quantum Critical Point”

*Wednesday, November 5, 2025 2:00 PM (30 minutes)*

We study the  $N = 3$  case of the  $NCCP^{N-1}$  model, which is a field theory of  $N$  complex scalars in 3d coupled to an Abelian gauge field with  $SU(N) \times U(1)$  global symmetry. Recent evidence suggests the  $N = 2$  theory is not critical, which makes the  $N = 3$  theory the simplest possibility of deconfined quantum criticality. We apply the conformal bootstrap to correlators of charge  $q = 0, 1, 2$  scalar operators under the  $U(1)$  symmetry, which gives us access also to  $q = 3, 4$  operators. After imposing that only the lowest  $q = 0, 1, 2$  scalar operators are relevant, we find that the bootstrap bounds are saturated by the large  $N$  prediction for  $q = 1, 2, 3, 4$  scalar monopole operator scaling dimensions, which were shown earlier to be accurate even for small  $N$ , as well as a lattice prediction for the  $q = 0$  non-monopole scalar operator. We also predict the scaling dimensions of the lowest spinning monopole operators, which we match to the large charge prediction for spinning operators. This suggests that the critical  $NCCP^2$  model is described by this bootstrap bound.