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Challenges in Conformal Bootstrap

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The conformal bootstrap program has emerged as one of the most powerful non-perturbative tools for studying critical phenomena in quantum and statistical field theories. By exploiting the symmetries and consistency conditions of conformal field theory (CFT), such as crossing symmetry and unitarity, this approach enables the determination of scaling dimensions and operator product expansion (OPE) coefficients without relying on perturbation theory or a Lagrangian description. In this talk, I will focus on future challenges to move beyond the landmark results obtained for the 3D Ising model and O(N) vector models, and to digest the obtained numerical results into analytic understanding of higher-dimensional CFTs.

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