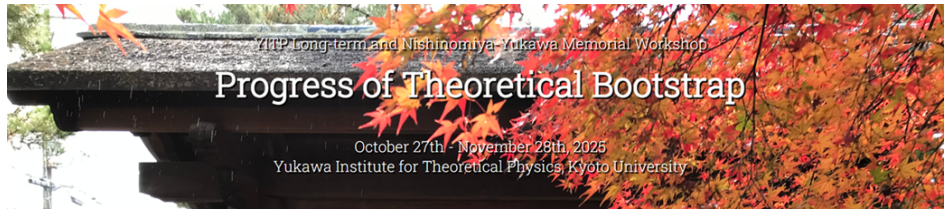


Progress of Theoretical Bootstrap



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Fabiana De Cesare "Disturbing news about the $2+\epsilon$ expansion"

Thursday, November 13, 2025 2:00 PM (1 hour)

The $O(N)$ Non-Linear Sigma Model (NLSM) in $d=2+\epsilon$ has long been conjectured to describe the same conformal field theory as the Wilson-Fisher $O(N)$ fixed point obtained from the $(\phi^2)^2$ model in $d=4-\epsilon$. In this talk, we put this conjecture into question, building on the recent observation [Jones,2024] that the NLSM CFT possesses a protected operator with dimension $N-1$, which is instead absent in the WF $O(N)$ CFT. We propose several scenarios that may explain this discrepancy.