

Resurgence structure on compactified spacetime with twisted boundary condition

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Recently, in the context of the resurgence program, it was conjectured that the perturbative ambiguity caused by the IR renormalon is canceled against the semi-classical object called bion. This conjecture requires the circle compactification with the Z_N twisted boundary condition, in which the bion solution is found. Contrary to this conjecture, we find that there is no IR renormalon in circle-compactified theories. We then argue that the bion cancels the perturbative ambiguity caused by the proliferation of Feynman diagrams, which are significantly affected by the compactification. These observations are helpful in giving a unified understanding on the resurgence structure.

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