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Renormalon in compactified spacetime and relation with bion

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Recently, it was conjectured that the perturbative ambiguity known as the renormalon is canceled against the nonperturbative semiclassical object called bion. This conjecture expects this kind of cancellation in the circle compactified spacetime, in which the bion solution is found, as a premise. To examine this conjecture, we study the renormalon structure in the compactified spacetime under the assumption typically realized in large N theories, and find that renormalon is significantly affected by the compactification. This seems to be against naive expectation of recent bion scenario.

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