

## Exact Formulas of the End-To-End Green's Functions in Non-hermitian Systems

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**Abstract :** The recent focus has been on directional signal amplification of a signal input at one end of a one-dimensional chain and measured at the other end. The amplification rate is given by the end-to-end Green's functions of the system. In this work, we derive the exact formulas for the end-to-end Green's functions of non-Hermitian single-band systems. While in the bulk region, it is found that the Green's functions are displaced from the prior established integral formula by  $O(e^{-bL})$ . The results confirm the correspondence between the signal amplification and the non-Hermitian skin effect.

**Keywords :** non-Hermitian, Green's function, non-Hermitian skin effect, signal amplification

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