

# Constant-Intensity Waves in Non-Hermitian Media

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In the framework of non-Hermitian photonics and parity-time (PT) symmetric optics, we will examine a generalization of the concept of plane waves that is possible only in media that have complex index of refraction. Such waves have constant intensity all over the space (CI-waves) and a phase that is directly related to the real and imaginary part of the corresponding non-Hermitian potential. Such waves exist for linear and nonlinear-guided systems in the paraxial regime [1,2,3] as well as, in scattering structures [4,5,6].

The main part of the talk will be thus devoted to the unique properties of CI-waves in nonlinear waveguides [1,2,3], in strongly scattering optical [4], and acoustic [5] non-Hermitian media. New results related to unidirectional invisibility [6] and the existence of CI-waves in two-dimensional scattering media will be presented.

## REFERENCES

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