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## Exceptional points and stopping of light

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### Abstract

We discuss exceptional point (EP) degeneracies in linear PT-symmetric systems, focusing specifically on waveguides. Here EP is the point, where two eigenvalues and respective eigenvectors merge forming the Jordan block algebraic structure, and PT-symmetry features wave systems, where loss is compensated by gain in a parity-symmetric manner. We start with a general introduction describing the mathematical structure and physical significance of spectral properties related to EPs. As the central application, we show that vanishing of a group velocity (i.e., full stop of a light pulse) in a waveguide is related to the EP condition. This result is supported by numerical simulations for a pair of coupled waveguides, where the gain/loss parameter is changed adiabatically in time.

ההרצאה תתקיים ביום רביעי, ה-12.12.18 בשעה 12:30  
באודיטוריום המכון למצב מוצק, קומת כניסה

The lecture will take place on Wednesday, 12.12.18 at 12:30  
at the Solid State Institute auditorium, entrance floor

Host: Prof. Nimrod Moiseyev