

Abstract Submitted  
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**Gain/loss induced localization in low-dimensional PT-symmetric models**<sup>1</sup> FELIX IZRAILEV, Instituto de Fisica, BUAP, Puebla, Mexico, and NSCL and Dept. of Physics and Astronomy, Michigan State University, USA, OMAR O. VASQUEZ-CANDANEDO, Instituto de Fisica, BUAP, Puebla, Mexico — We show that both loss (absorption) and gain (amplification) can induce the localization of eigenstates in low-dimensional models with PT-symmetric potentials. Main results are obtained for 1D tight-binding models and for bi-layered models widely used in optics. We analyze both closed and open models within a unique approach allowing us to reveal the mechanisms responsible for the onset of localization. Specific attention is paid to the interplay between the localization emerging due to weak disorder and the localization induced by gain and loss. The analytical results are compared with the direct computation of the spectrum and eigenstates (for closed models), as well as of the transport characteristics (for open models). Some of the found effects can be observed experimentally in PT-symmetric photonic devices.

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Felix Izrailev  
Instituto de Fisica, BUAP, Puebla, Mexico, and NSCL and  
Dept. of Physics and Astronomy, Michigan State University, USA

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