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**Caustics Formation and Sharp Focusing in PT-symmetric Waveguide Arrays** NICHOLAS BENDER, Wesleyan University, HAMIDREZA RAMEZANI, NSF Nanoscale Science and Engineering Center, University of California, Berkeley, TSAMPIKOS KOTTOS, Wesleyan University — We investigate focusing effects and curved optical beam trajectories in waveguide arrays consisting of coupled dimers with local Parity-Time symmetry i.e. one element of the dimer has loss and the other an equal amount of gain. When the intra-dimer coupling is stronger than the inter-dimer coupling the propagation constants of this array are real (exact PT-symmetric phase). We find that, under such conditions, appropriate tailoring of the phases and amplitudes of the initial beam can lead to reconfigurable caustic phenomena and curved beam propagation, as well as focusing of the initial beam at paraxial distances controlled by the degree of gain and loss involved in these PT-symmetric structures.

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