

Abstract Submitted
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Frequency-dependent cavity lifetime and apparent superluminality in Fabry-Perot-like interferometer HSIN-YU YAO, NAI-CHING CHEN, TSUN-HSU CHANG, National Tsing Hua University, HERBERT G. WINFUL, University of Michigan — Extraordinary group delays shorter than the transit time of light propagating at c through an equal distance have been experimentally demonstrated in single-Fabry-Perot (FP) waveguide systems and cascaded-FP structures under off-resonant conditions. These “superluminal” phenomena are well explained by the multiple-reflection destructive interference that reduces the intracavity stored energy when operating off resonances. Excellent agreement between theory and experiment is obtained when the dispersive effects of reflective boundaries are considered. These results provide further insight into the nature of apparent superluminality in regions of allowed propagation.

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