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**MARK KEMPTON**, Brigham Young University  
*Pretty Good Quantum Fractional Revival in Paths*

Tools and techniques from algebraic graph theory have found important application in quantum information theory regarding the problem of transferring a quantum state through a network. A graph with adjacency matrix  $A$  is said to exhibit perfect state transfer from vertex  $u$  to  $v$  if  $|\exp(itA)(u, v)| = 1$  for some time  $t$ . A generalization of perfect state transfer called fractional revival occurs between a pair of nodes when any state initially (at  $t = 0$ ) concentrated on those two nodes ends up concentrated on those two nodes at some time  $t > 0$ . Thus perfect state transfer is a special case of fractional revival. We will discuss when fractional revival happens approximately—so-called pretty good fractional revival. We will characterize when pretty good fractional revival can occur in a path graph.