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Laura A Smithies* (smithies@math.kent.edu), Department of Mathematical Sciences, Kent State University, Kent, OH 44242. *Decompositions of Tridiagonal Nearly Normal Matrices.*

Recall that an n -dimensional complex matrix M is *normal* if it commutes with its adjoint $[M, M^*] = MM^* - M^*M = M\bar{M}^t - \bar{M}^tM$ is the zero matrix. Define a matrix to be *nearly normal* if $[M, M^*]$ has minimal non-zero rank. In this talk, we will explain the special structure that tridiagonal nearly normal matrices satisfy. We will show how when n is odd (respectively, even) this structure allows us to give explicit (respectively, implicit) formulas for the spectral and singular value decompositions of tridiagonal nearly normal matrices. We also indicate possible directions for further research. (Received January 10, 2011)