
CAN ONE HEAR A MATRIX?
OR
THE DETERMINATION OF A REAL SYMMETRIC
MATRIX FROM SPECTRAL INFORMATION

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The question asked in the title is addressed from two points of view: First, it will be shown that providing enough (term to be explained) spectral data, suffices to reconstruct a wide class of matrices. Second, a newly developed trace formula for Hermitian matrices will be shown to be intimately connected to this construction.