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Tim Wertz* (tmwertz@math.ucdavis.edu) and **Thomas Strohmer**. *Localization of Matrix Factorizations*.

An important non-commutative generalization of the famous Wiener's Lemma states that under certain conditions the inverse \mathbf{A}^{-1} of a matrix \mathbf{A} will inherit the off-diagonal decay properties of \mathbf{A} . In this paper, we investigate whether this Wiener property extends to matrix factorizations. For example, given the QR-factorization $\mathbf{A} = \mathbf{Q}\mathbf{R}$ of a bi-infinite matrix \mathbf{A} , where \mathbf{A} belongs to some Banach algebra \mathcal{A} which characterizes its off-diagonal decay, do \mathbf{Q} and \mathbf{R} also belong to \mathcal{A} ? We will answer this question for the most important matrix factorizations. (Received February 14, 2013)