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Topologically Transitive Matrix Semigroups

We investigate the properties and structure of topologically transitive multiplicative semigroups of real or complex matrices, and are particularly interested in the question: "What extra conditions must be imposed on such semigroups to guarantee transitivity?"

A set $\mathcal{S}$ of matrices is topologically transitive if any non-zero vector can be mapped arbitrarily close to any other vector by a matrix in $\mathcal{S}$, and is transitive if any non-zero vector can be mapped extactly to any other vector by a matrix in $\mathcal{S}$.

This talk is based on joint work with Leo Livshits and Heydar Radjavi.