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The joint spectral radius of a family of matrices

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Let A_1, A_2 be the two 2×2 matrices

$$\begin{pmatrix} 1 + 2\lambda & 2\lambda \\ -1/2 - 2\lambda + \mu/2 & 1/2 - 2\lambda - \mu/2 \end{pmatrix}, \\ \begin{pmatrix} 1/2 - 2\lambda - \mu/2 & -1/2 - 2\lambda + \mu/2 \\ 2\lambda & 1 + 2\lambda \end{pmatrix},$$

we define the subset of the plane $\Omega = \{(\lambda, \mu) : \rho(A_1, A_2) < 1\}$ where $\rho(A_1, A_2)$ is the joint spectral radius of $\{A_1, A_2\}$. We discuss the approximation of Ω . The precise shape of Ω can be found by a very nice theorem of Bernhard Mfner.