CROUZEIX' CONJECTURE ABOUT THE NORM OF MATRIX FUNCTIONS

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Let A be a bounded linear operator. It is known that $\|A^k\| \leq 2 \max_{z \in W(A)} |z^k|$; $W(A)$ denotes the numerical range of A.

Open problem: Prove Crouzeix' conjecture: There exists a constant $C \geq 2$ such that for all analytic functions $f : W(A) \to \mathbb{C}$ holds $\|f(A)\| \leq C \max_{z \in W(A)} |f(z)|$.

Crouzeix conjectured further that $C \leq 11.08$.

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