Kelly Bickel, Anne Greenbaum, Pamela Gorkin* (pgorkin@bucknell.edu), Thomas Ransford, Felix Schwenninger and Elias Wegert. Crouzeix’s Conjecture and Related Problems.

Let $W(A)$ denote the numerical range of an $n \times n$ matrix $A$:

$$W(A) = \{\langle Ax, x \rangle : \|x\| = 1\}.$$ 

Michel Crouzeix showed that there is a constant $C$ such that

$$\|f(A)\| \leq C \sup_{z \in W(A)} |f(z)|,$$

for all $f$ analytic on a neighborhood of $W(A)$ and he conjectured that the best constant is $C = 2$. In this talk, we present a short history of work on the conjecture, some recent results, and open questions related to this conjecture. (Received August 25, 2020)