1086-VM-2706   **Timothy C Melvin*** (`tmelvin@math.wsu.edu`), 1601 N Benton Ave, Carroll College, Math Dept, Helena, MT 59625. *Spectrally Arbitrary Zero-Nonzero Patterns and the Nilpotent Jacobian Method.*

A zero-nonzero pattern $\mathcal{A}$ is a matrix whose entries are from the set $\{*, 0\}$. We say that an $n \times n$ zero-nonzero pattern is a spectrally arbitrary pattern (SAP) over the field $\mathbb{F}$ if for every monic polynomial $p(x)$ with coefficients from $\mathbb{F}$ of degree n, there exists a matrix A over $\mathbb{F}$ with zero-nonzero pattern $\mathcal{A}$ such that the characteristic polynomial of A is $p(x)$. The Nilpotent-Jacobian Method is a powerful tool used to determine if a pattern $\mathcal{A}$ is a SAP, when the field $\mathbb{F}$ is $\mathbb{R}$. We will explore what (if any) information can be gleaned from this method when we look at a pattern over other fields, including finite fields, $\mathbb{Q}$, $\overline{\mathbb{Q}}$ (the algebraic closure of $\mathbb{Q}$), and $\mathbb{C}$. (Received September 25, 2012)