1123-15-317 **Louis Deaett*** (louis.deaett@quinnipiac.edu) and **Colin Garnett**. *Algebraic and combinatorial conditions on spectrally arbitrary patterns.* Preliminary report.

The *zero-nonzero pattern* of a matrix specifies precisely which of its entries are nonzero. Imagine we have fixed some $n \times n$ zero-nonzero pattern and some field k. We may ask if there exists a matrix with this pattern and entries in k realizing each possible characteristic polynomial with coefficients in k. If so, the pattern is said to be *spectrally arbitrary* over k. The so-called $2n$ Conjecture states that the number of nonzero entries in such a pattern must be at least $2n$. We discuss combinatorial and algebraic conditions which imply that a given zero-nonzero pattern cannot be spectrally arbitrary over any field k. Using such conditions, we verify that the $2n$ Conjecture in fact holds for $n \leq 6$, over every field. (Received August 29, 2016)