

# Discrete Mathematics Seminar

Illinois State University

2:00–2:50 pm, February 25

Speaker: Wei Gao, Penn State Abington

## Zero-nonzero patterns that allow or require $\mathbb{S}_n^*$

A zero-nonzero pattern matrix is a matrix with entries from  $\{*, 0\}$ , where  $*$  is nonzero. Motivated by the possible onset of instability in dynamical systems associated with a zero eigenvalue, the inertia set  $S_n^*$  for  $n \geq 2$  is defined to be  $\mathbb{S}_n^* = \{(0, n, 0), (0, n - 1, 1), (1, n - 1, 0), (n, 0, 0), (n - 1, 0, 1), (n - 1, 1, 0)\}$ . In this talk, some known results about zero-nonzero patterns that allow or require  $\mathbb{S}_n^*$  will be shown. Some proof techniques will also be discussed.

