Signed Magic Rectangles

Presenter Brandi Ellis, Mathematics major
Mentored by Dr. Abdollah Khodkar

A signed magic rectangle SMR(m, n; k, s) is an m × n array with entries from X, where X = {0,±1,±2,..., ±(mk−1)/2} if mk is odd and X = {±1,±2,...,±mk/2} if mk is even, such that precisely k cells in every row and s cells in every column are filled, every integer from set X appears exactly once in the array and the sum of each row and of each column is zero. In this presentation we study the existence of an SMR(m,n;k,3) for the case n even and 3|k or 3|m.