

Discrete Mathematics Seminar

Illinois State University

2:00–2:50 pm, December 2

Speaker: Amin Bahmanian, Illinois State University

Andersen-Hoffman Theorem for ρ -latin Rectangles

Let L be an $n \times n$ array whose top left $r \times r$ subarray is filled with k different symbols, each occurring at most once in each row and at most once in each column. We establish necessary and sufficient conditions that ensure the remaining cells of L can be filled such that each symbol occurs at most once in each row and at most once in each column, L is symmetric with respect to the main diagonal, and each symbol occurs a prescribed number of times in L . The case where the prescribed number of times each symbol occurs is n was solved by Cruse (J. Combin. Theory Ser. A 16 (1974), 18–22), and the case where the top left subarray is $r \times n$ and the symmetry is not required, was settled by Goldwasser et al. (J. Combin. Theory Ser. A 130 (2015), 26–41). Our result allows the elements of the main diagonal to be specified as well, which leads to an extension of the Andersen-Hoffman Theorem.

