

A Combinatorial Interpretation of the LDU-Decomposition of Totally Positive Matrices and their Inverses

Abstract

In this talk we explore the combinatorial description of the LDU-decomposition of totally positive matrices. A description of the lower triangular L , the diagonal D and the upper triangular U matrices of the LDU-decomposition of totally positive matrices in terms of the combinatorial structure of essential planar networks is provided. Similarly, we give a combinatorial description of the inverses of the aforementioned matrices. Lastly, we provide recursive formulae for computing the L , D , and U matrices of a totally positive matrix.