

A connection between integer compositions and Dyck paths

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In this talk, we will show an identity that connects the number of integer compositions of n having k parts with the number of Dyck paths of semilength n having exactly k peaks. This connection relies on the enumeration of these combinatorial families via partial Bell polynomials. We will discuss several illustrating examples and will explore similar identities for other combinatorial objects.

Keywords: Integer compositions, Dyck paths, partial Bell polynomials