

## A relation between non-decreasing Dyck paths and Riordan arrays

Rigoberto Flórez\*, José L. Ramírez, Fabio A. Velandia, and Diego Villamizar. The Citadel

A *Dyck path* is a lattice path in the first quadrant of the  $xy$ -plane that starts at the origin and ends on the  $x$ -axis. It consists of the same number of North-East (U) and South-East (D) steps. A *valley* is a subpath of the form DU. The height of a valley is the  $y$ -coordinate of its lowest point. A Dyck path is called *non-decreasing* if the heights of its valleys form a non-decreasing sequence (from left to right). In this talk we discuss the relation between non-decreasing Dyck paths and Riordan arrays. In the end of the talk we introduce the Restricted Dyck Paths as an extension of non-decreasing Dyck paths.

Keywords: Non-decreasing Dyck path, Valley, Riordan array, primitive path.