Bounce statistics for rational lattice paths

Michael D. Weiner, Penn State Altoona

Given two relatively prime positive integers α and β, we consider simple lattice paths (with unit East and unit North steps) from $(0,0)$ to $(\alpha k, \beta k)$, and enumerate them by their left and right bounces with respect to the line $y = \frac{\beta}{\alpha}x$. We give the corresponding multivariate generating functions for all such paths. We look at a connection between lattice paths with a prescribed number of bounces and standard Young tableaux, as well as other interesting connections.
This is joint work with Daniel Birmajer and Juan Gil.

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