

## **On rational Dyck paths and factor-free Dyck words**

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Motivated by a result of P. Duchon, we study rational Dyck paths and give a bijection between rational Dyck paths and regular Dyck paths with ascents colored by factor-free Dyck words. This bijection leads to a new statistic based on the reducibility level of the paths for which we provide a corresponding formula in terms of partial Bell polynomials. This is joint work with Daniel Birmajer and Michael Weiner.

Keywords: rational Dyck paths, factor-free Dyck words, partial Bell polynomials