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Juan B. Gil* (jgil@psu.edu), 3000 Ivyside Park, Altoona, PA 16601, and **Daniel Birmajer**
and **Michael D. Weiner**. *On rational Dyck paths and the enumeration of factor-free Dyck words.*

Motivated by independent results of Bizley and Duchon, we study rational Dyck paths and their subset of factor-free elements. On the one hand, we give a bijection between rational Dyck paths and regular Dyck paths with ascents colored by factor-free words. This bijection leads to a new statistic based on the reducibility level of the paths for which we provide a corresponding formula. On the other hand, we derive a formula for the enumeration of factor-free words and give alternative formulas for various enumerative sequences that appear in the context of rational Dyck paths. (Received September 18, 2018)