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Robert Buckingham* (buckinrt@uc.edu), Department of Mathematical Sciences, University of Cincinnati, Cincinnati, OH 45221. *Nonintersecting Brownian bridges on the unit circle with drift and generalized Hastings-McLeod functions.*

Nonintersecting Brownian bridges on the unit circle form a determinantal stochastic process exhibiting random matrix statistics for large numbers of walkers. We investigate the effect of adding a drift term to walkers on the circle conditioned to start and end at the same position. We use Riemann-Hilbert analysis of a family of discrete orthogonal polynomials with a complex weight to compute the asymptotic distribution of total winding numbers in the scaling regime in which the expected total winding is finite. Furthermore, we show that an appropriate double scaling of the drift and return time leads to a generalization of the tacnode process expressed in terms of generalized Hastings-McLeod functions. We further investigate the large-degree asymptotic behavior of the generalized Hastings-McLeod functions, which have arisen in a variety of integrable probability contexts. This is joint work with Karl Liechty (DePaul University) and Kurt Schmidt (University of Cincinnati). (Received January 12, 2020)