Koseleff and Pecker showed that every knot can be parametrized as a generalized harmonic curve using Chebyshev polynomials and a phase shift. These have diagrams that appear as nice trajectories on billiard tables. We present a model for random knotting using these diagrams.

We study data obtained from polynomial invariants of these random knots. We compute the Alexander polynomials from grid graphs based on previous work with Dasbach and Russell. We compute the Jones polynomials for 2- and 3-bridge knots based on previous work by the author using these diagrams.

Supported in part by the funding from the European Research Council under the European Union’s Seventh Framework Programme, Grant FP7-ICT-318493-STREP. (Received September 10, 2014)