

1159-57-41

Ross Staffeldt* (ross@nmsu.edu), MSC 3MB, PO Box 30001, Las Cruces, NM 88003-0131, and **Rama Mishra** and **Hitesh Raundal**. *Probability distributions associated with weaving knots*. Preliminary report.

In 2016 Champanerkar, Kofman, and Purcell proved asymptotically efficient bounds on the hyperbolic volume of the complements of general weaving knots. Motivated by this result, we started to investigate other invariants of weaving knots for asymptotic behavior. Running computer experiments on knots $W(3, n)$, the weaving knots on 3 strands with $2n$ crossings, having up to 300 crossings we discovered that the ranks of Khovanov homology groups appeared to be normally distributed asymptotically. The phenomenon resembles the well-understood relationship between the discrete binomial distribution and the continuous normal distribution. As these knots are alternating, once one knows the signature, the ranks of their Khovanov homology and Heegaard-Floer homology groups are determined by the coefficients of the Jones polynomial and the coefficients of the Alexander polynomial, respectively. The focus of the report will be on recursive formulas for the coefficients of the Alexander polynomials of $W(3, n)$ and progress toward identifying continuous distributions that approximate the discrete data. We will also describe experiments performed by two of the authors indicating the asymptotic phenomena persist as the number of strands increases. (Received July 17, 2020)