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**Yuanan Diao** and **Claus Ernst\***, Department of Mathematics, and Computer Science, Bowling Green, KY 42101, and **Uta Ziegler**. *On the square writhe of a minimal alternating knot diagram*. Preliminary report.

Given a knot diagram  $D$  with  $n$  crossings. If we assume that the over and underpass at each crossing is assigned at random then the expected value of the square writhe  $E(wr^2(D)) = n$ . If  $D$  is an alternating minimal knot diagram with  $n$  crossings then one expects that  $E(wr^2(D)) > n$ . We provide numerical evidence collected to support this expectation and give an exact analysis of  $E(wr^2(D))$  for some knot families. (Received February 14, 2010)