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Asymptotic Behavior of the Linking Probability of 2-Component Links in a Lattice Tube

In this talk we will explore the homological linking probability of ring polymers confined to a tube. We model a pair of polymers by two self-avoiding polygons (2SAP) which span a tubular sublattice of \mathbb{Z}^3 . Then we use the linking number of the 2SAP to determine whether the two polygons are linked. We prove a pattern theorem for 2SAPs and establish a lower bound (with probability one) on the rate of increase of their linking number. As a result, we show that the linking probability of 2SAPs approaches one as the size of the 2SAP goes to infinity. We also show that the linking number of an n -step 2SAP is at most linear in n .