
Winding of simple walks on the square lattice

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I will describe how to approach the problem of counting certain classes of simple walks on the square lattice, while keeping track of the winding angle around the origin. Several applications will be discussed including the counting of simple excursions in cones of various opening angles and winding angle statistics of simple random walks and random loops. If time permits I may comment on potential applications in the physics of 2d materials. Based on: T. Budd, JCTA 172(2020):105191, [arXiv:1709.04042](#).