
ALEKS OWCZAREK, The University of Melbourne

Exact solution of two friendly walks above a sticky wall with single and double interactions

We find, and analyse, the exact solution of two friendly directed walks, modelling polymers, which interact with a wall via contact interactions. We specifically consider two walks that begin and end together so as to imitate a polygon. We examine a general model in which a separate interaction parameter is assigned to configurations where both polymers touch the wall simultaneously, and investigate the effect this parameter has on the integrability of the problem. We provide a full analysis of the phase diagram that admits three phases with one first-order and two second-order transition lines between these phases.