

## Directed walk models of a long chain polymer in a strip with attractive walls

Andrew Rechnitzer  
`andrewr@math.ubc.ca`  
*Department of Mathematics*  
*The University of British Columbia*  
*1984 Mathematics Road*  
*Vancouver, British Columbia V6T 1Z2*  
*CANADA*

### **Abstract**

Directed paths on regular lattices are idealised geometric models of polymers. Despite their apparent simplicity, they give rise to interesting combinatorial problems and display rich behaviour. In this talk I will discuss a directed walk model of polymer-colloid interactions. The generating functions for this model (and a number of generalisations of it) can be computed exactly. From these, we are able to extract information about the behaviour of the model in the long-polymer limit and demonstrate that the model exhibits several different thermodynamic phases.