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Forces and Pressures in Models of Partially Directed Paths

A partially directed path in a half-lattice loses entropy if it is confined by vertical walls and this models polymeric entropy in confined spaces. This loss in entropy induces an entropic force on the walls, pushing them apart. In this talk we will determine the generating and partition functions of models of partially directed walks in the half-lattice, and compute the entropic forces and pressures from the partition function. In addition, some results on the asymptotic behaviour of the entropic forces and pressure will be discussed. This work was done in collaboration with Thomas Prellberg.