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Thermodynamics and Preliminary Size Parameters of a Polymer Confined to a Lattice of Finite Size: Matrix Method CHAD SNYDER, CHARLES GUTTMAN, Materials Science and Engineering Division, NIST, Gaithersburg, Maryland, EDMUND DIMARZIO, Bio-Poly-Phase, 14205 Parkvale Road, Rockville, Maryland — We write exact equations for the thermodynamic properties and end-to-end distance of a linear polymer molecule confined to walk on a lattice of finite size. A theory is presented wherein the dimension of the space in which the lattice resides can be arbitrary. In this theory, the boundary can be of arbitrary shape and the attraction of the monomers for the sites can be an arbitrary function of each site. The formalism is even more general in that each monomer can have its own energy of attraction for each lattice site. In particular, we look at the effect of energy variation along the lattice walls with the idea of studying the effect of heterogeneities in the energies of a surface on polymer attachment.

Chad Snyder
Materials Science and Engineering Division, NIST, Gaithersburg, Maryland

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