

MAXIMUM AND ENTROPY REPULSION FOR MEMBRANE MODELS: THE FOUR-DIMENSIONAL CASE

Erwin BOLTHAUSEN and Noemi KURT (University of Zürich)

We consider the Gaussian interface model whose covariance is given by the Green's function of the discrete bi-Laplacian, and we prove estimates for the maximum on a large finite box, and the deviation of the interface in the entropic repulsion (hard wall) regime. For the bi-Laplacian, four dimensions is critical, like two dimensions are for the Laplacian. The analysis requires a multiscale analysis. In contrast to the harmonic crystal, there is no direct random walk representation. This is joint work with Noemi Kurt (Zürich).