ESTIMATING DIFFUSION COEFFICIENTS FROM COUNT DATA: EINSTEIN-SMOLUCHOWSKI THEORY REVISITED

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Abstract. The problem of estimating diffusion coefficients has been considered extensively in both discrete and continuous time. We consider here an approach based on counting occupation numbers of diffusing particles. The problem, and our approach, are motivated by statistical mechanics.

Key words and phrases: Diffusion, coverage process, regenerative phenomenon, Campbell's theorem, infinite server queue, Einstein-Smoluchowski process, Avogadro's number.