

## Error bounds for weak approximation of diffusion processes

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We consider the problem of approximating the expectation  $E(f(X))$ , where  $X$  is a diffusion process with values in  $C([0, 1])$  and  $f : C([0, 1]) \rightarrow \mathbb{R}$  is Lipschitz continuous. We study deterministic as well as randomized algorithms based on a fixed number of functional evaluations. Exploiting recent results on quantization of diffusion processes we establish lower and upper bounds on the corresponding minimal worst case errors.