

Standard Notations

If you come across something that isn't in the list that is likely to come up, add it and post the document on slack/GitHub again so we're all aware of the update.

Put notes or things that need to be changed inside plus signs so that Ctrl+F can be used to find. E.g. +++ Insert reference to foo here +++ . Also allows you to highlight uncertain areas for other people to check.

Diffusion	X_t
Brownian Motion/Wiener Process	W_t
Potential	$U : \mathbb{R}^d \rightarrow \mathbb{R}$
Random Variables	Uppercase math font e.g. X, Y, Z
Normalisation Constant	mathcal Z i.e. \mathcal{Z}
Iteration	X_k
Step Size	h
Taming Function	T
Stationary/Target/ True distribution	π
Normal random variables	Z
Minimum function	\wedge i.e. $\min\{t, s\} = t \wedge s$
Maximum function	\vee i.e. $\max\{t, s\} = t \vee s$
Dimension	d
Proposed step	Y
Lipschitz constant	L
Strong convexity constant	m
Number of iterations	N
Startpoint	$X_0 = x_0$

The first ten are Langevin Monte Carlo (LMC) algorithms. Try and drop subscript where possible, it is ugly.

Algorithm	Name	Stationary Distribution
Unadjusted Langevin Algorithm	ULA	π_{ULA}^γ
Tamed Unadjusted Langevin Algorithm	tULA	π_{tULA}^γ
Coordinatewise Tamed Unadjusted Langevin Algorithm	tULAc	$\pi_{\text{tULAc}}^\gamma$
Metropolis Adjusted Langevin Algorithm	MALA	π_{MALA}^γ
Tamed Metropolis Adjusted Langevin Algorithm	tMALA	$\pi_{\text{tMALA}}^\gamma$
Coordinatewise Tamed Metropolis Adjusted Langevin Algorithm	tMALAc	$\pi_{\text{tMALAc}}^\gamma$
Metropolis Adjusted Langevin Truncated Algorithm	MALTA	$\pi_{\text{MALTA}}^\gamma$
Higher Order Langevin Algorithm	HOLA	π_{HOLA}^γ
Tamed Higher Order Langevin Algorithm	tHOLA	$\pi_{\text{tHOLA}}^\gamma$
Coordinatewise Tamed Higher Order Langevin Algorithm	tHOLAc	$\pi_{\text{tHOLAc}}^\gamma$
Leimkuhler-Matthews Algorithm	LM	π_{LM}^γ
Tamed Leimkuhler-Matthews Algorithm	tLM	π_{tLM}^γ
Coordinatewise Tamed Leimkuhler-Matthews Algorithm	tLMc	π_{tLMc}^γ
Random Walk Metropolis Algorithm	RWM	π_{RWM}^γ