Rejoinder

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First of all, we would like to thank both D. Woodard and M. Girolami & A. Mira for their excellent and detailed comments on our paper. Their remarks and questions have given us quite a number of new ideas for improving our sampling procedure. As suggested by both, we have conducted new sampling runs for two additional examples, which illustrate the usefulness of CIMH and ACIMH and answer some of the questions brought forward. Since Woodard's comments focus on one particular aspect of CIMH/ACIMH, while Girolami & Mira point out several different considerations, we will first reply to Woodard's comments.

1 Rejoinder on Woodard's comments

While our paper focuses primarily on a practical evaluation of the proposed new sampling schemes, Woodard's comments provide a nice theoretical addition. As pointed out in Cowles and Carlin (1996), both approaches complement each other and are equally important. Theoretical convergence results are often not easy or straightforward to assess, so we thank D. Woodard for the effort to improve the theoretical understanding of our algorithm.

Woodard shows that the efficiency should degrade exponentially in the dimension d of the target distribution. It is true that our algorithm seems to suffer from a decaying performance in higher-dimensional systems, as many other popular MCMC algorithms like the independence sampler or the Metropolis-Hastings algorithm do, cf. Hairer et al. (2011). However, we have already shown that the algorithm still performed well in two medium-sized systems of 12 and 15 dimensions, see Schmidl et al. (2012).

To see if we can assess the dimensionality issue more thoroughly also in practice, we chose a simple and straightforward example, which we sampled in various dimensions from 2 to 50. Concretely, we chose to sample from a strongly correlated normal

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