1112-60-418 **François Guay** (fguay@bu.edu), Department of Economics, Boston University, Boston, MA 02215, and **Gustavo Schwenkler*** (gas@bu.edu), Questrom School of Business, Boston University, 595 Commonwealth Ave, Boston, MA 02215. *Uncovering the Transition Density of Multivariate Markovian Diffusions.* Preliminary report.

We develop novel representations of the transition density of a multivariate diffusive stochastic process. The representations are based on a randomization technique introduced by Glynn & Rhee (2013), and they facilitate the unbiased estimation of the transition density across the state and parameter spaces via Monte Carlo simulation. We use our density estimators for parameter inference in settings with latent factors that are common in financial engineering. The obtained parameter estimators are shown to be consistent and asymptotically normal under certain conditions. Numerical examples illustrate our results. (Received August 10, 2015)