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**Sarah Wolff\*** ([sarah.e.wolff@dartmouth.edu](mailto:sarah.e.wolff@dartmouth.edu)). *Random Walks on the BMW Monoid: an Algebraic Approach.*

We consider the problem of randomly generating basis elements of a semisimple algebra; namely, the Birman Murakami Wenzl (BMW) monoid basis of the BMW algebra. We present a generalized metropolis scan algorithm that translates to a natural random walk on the BMW monoid. Interpreting this walk as a left multiplication operator in the BMW algebra then allows for analysis using tools from representation theory and Fourier analysis. (Received September 07, 2014)