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Adam E Telatovich* (adam.telatovich@gmail.com), Department of Mathematics, 430 McAllister Building, Pennsylvania State University, University Park, PA 16802. *Operator splitting methods for solving the Langevin equation: new methods and analysis of their convergence.* Preliminary report.

In this talk, I will present new operator splitting methods for solving the Langevin stochastic differential equation, which is a joint project with my thesis advisor. Operator splitting methods for ordinary differential equations have been extensively studied by Gilbert Strang and others. We extend the methods to the Langevin equation. To analyze the convergence orders of the approximations (in the strong and weak sense), we compare them with the so-called Ito Taylor expansion of the exact solution, which is a stochastic analogue of the usual Taylor expansion. The methods are easy to implement. (Received September 27, 2017)