

On efficient approximation of SDEs driven by countably dimensional Wiener process

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In this talk we summarise the most recent results linked to pointwise and global approximation problem for stochastic differential equations driven by countably dimensional Wiener process. In particular, under certain regularity conditions imposed on the coefficients we derive lower error bounds that cannot be beaten by any admissible algorithm. Furthermore, we provide construction of the methods that asymptotically attain these estimates. We note that all proposed algorithms are implementable.

- [1] P. Przybyłowicz, M. Sobieraj, L. Stępień (2022). Efficient approximation of SDEs driven by countably dimensional Wiener process and Poisson random measure. *SIAM Journal on Numerical Analysis*, 60, 824–855.
- [2] L. Stępień (2023). Adaptive step-size control for global approximation of SDEs driven by countably dimensional Wiener process, *Numerical Algorithms*.