

BEYOND STRONG RATE $1/2$ FOR APPROXIMATIONS OF SPACE-TIME WHITE NOISE DRIVEN SPDES

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We consider $1 + 1$ -dimensional space-time white noise driven reaction-diffusion type equations (e.g. stochastic Allen-Cahn equation), more precisely their full discretisation. Strong rate of convergence $1/2$ has been proven before and has been considered optimal, supported by rigorous lower bounds. We show that weakening the path topology where the error is measured results in higher strong rate of convergence (which is not the case for finite dimensional SDEs). The proof leverages tools from singular SPDEs.

Joint work with Harprit Singh (Imperial College London).