DYADIC NON LOCAL DIFFUSION. THE POINTWISE CONVERGENCE TO THE INITIAL DATA

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ABSTRACT. In this paper we solve the initial value problem for the diffusion induced by a dyadic fractional derivative in $\mathbb{R}^+$. The main result concerns the pointwise estimate of the maximal operator of the diffusion by the Hardy-Littlewood dyadic maximal operator. As a consequence we obtain the pointwise convergence for the initial data in Lebesgue spaces.