1D Abs Abs (solution)

Green's function

$$v(z,t|z',t'=0) = \frac{2}{L} \sum_{n=1}^{\infty} e^{-D_1 n^2 \pi^2 t/L^2} \sin \frac{n\pi z}{L} \sin \frac{n\pi z'}{L}.$$

Survival probability

$$S_z(t) = \int_0^L v \, dz = \frac{4}{\pi} \sum_{m=0}^{\infty} \frac{1}{2m+1} e^{-D_1(2m+1)^2 \pi^2 t/L^2} \sin \frac{(2m+1)\pi z'}{L}.$$

Propensity function

$$q_{z=0}(t) = D_1 \frac{\partial v}{\partial z}\bigg|_{z=0} = \frac{2\pi D_1}{L^2} \sum_{n=1}^{\infty} e^{-D_1 n^2 \pi^2 t/L^2} n \sin \frac{n\pi z'}{L},$$

$$q_{z=L}(t) = -D_1 \frac{\partial v}{\partial z}\bigg|_{z=L} = \frac{2\pi D_1}{L^2} \sum_{n=1}^{\infty} e^{-D_1 n^2 \pi^2 t/L^2} (-1)^{n+1} n \sin \frac{n\pi z'}{L}.$$

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