
Subject: How to implement periodic boundaries in IMSL_PDE_MOL?

Posted by [Tatcher](#) on Wed, 09 Mar 2011 09:32:57 GMT

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Hi!

I try to use IMSL_PDE_MOL to solve the diffusion equation $U_t = U_{xx}$ to become acquainted with the routine.

Initial values:

$t=0$

$0 \leq x \leq 1$

$U(x,0) = \text{gauss function}$

If I am using zero flux boundaries all is working smoothly und the distribution decays nicely.

$u(0,t) = u(1,t) = 0$

the values for 'f_bc' are then: $\alpha=1$, $\beta=0$, $\gamma=0$

If I want to use periodic boundaries, I am lost. I want to do something like this $U[0,n] = U[X-2,n]$; $U[N-1,n] = U[1,n]$ How do I get the "ghost variables" of U in 'f_bc' and how to update α , β and γ ?

Cheers,

Christian
