NAG Library Chapter Contents

d03 – Partial Differential Equations

d03 Chapter Introduction – a description of the Chapter and an overview of the algorithms available

Function Name	Mark of Introduction	Purpose
d03ncc	7	nag_pde_bs_1d Finite difference solution of the Black–Scholes equations
d03ndc	7	nag_pde_bs_1d_analytic Analytic solution of the Black–Scholes equations
d03nec	7	nag_pde_bs_1d_means Compute average values for nag_pde_bs_1d_analytic (d03ndc)
d03pcc	7	nag_pde_parab_1d_fd General system of parabolic PDEs, method of lines, finite differences, one space variable
d03pdc	7	nag_pde_parab_1d_coll General system of parabolic PDEs, method of lines, Chebyshev C^0 collocation, one space variable
d03pec	7	nag_pde_parab_1d_keller General system of first-order PDEs, method of lines, Keller box discretization, one space variable
d03pfc	7	nag_pde_parab_1d_cd General system of convection-diffusion PDEs with source terms in conservative form, method of lines, upwind scheme using numerical flux function based on Riemann solver, one space variable
d03phc	7	nag_pde_parab_1d_fd_ode General system of parabolic PDEs, coupled DAEs, method of lines, finite differences, one space variable
d03pjc	7	nag_pde_parab_1d_coll_ode General system of parabolic PDEs, coupled DAEs, method of lines, Chebyshev C^0 collocation, one space variable
d03pkc	7	nag_pde_parab_1d_keller_ode General system of first-order PDEs, coupled DAEs, method of lines, Keller box discretization, one space variable
d03plc	7	nag_pde_parab_1d_cd_ode General system of convection-diffusion PDEs with source terms in conservative form, coupled DAEs, method of lines, upwind scheme using numerical flux function based on Riemann solver, one space variable
d03ppc	7	nag_pde_parab_1d_fd_ode_remesh General system of parabolic PDEs, coupled DAEs, method of lines, finite differences, remeshing, one space variable
d03prc	7	nag_pde_parab_1d_keller_ode_remesh General system of first-order PDEs, coupled DAEs, method of lines, Keller box discretization, remeshing, one space variable
d03psc	7	nag_pde_parab_1d_cd_ode_remesh General system of convection-diffusion PDEs, coupled DAEs, method of lines, upwind scheme, remeshing, one space variable
d03puc	7	nag_pde_parab_1d_euler_roe Roe's approximate Riemann solver for Euler equations in conservative form, for use with nag_pde_parab_1d_cd (d03pfc), nag_pde_parab_1d_cd_ode (d03plc) and nag_pde_parab_1d_cd_ode_remesh (d03psc)

d03pvc	7	nag_pde_parab_1d_euler_osher Osher's approximate Riemann solver for Euler equations in conservative form, for use with nag_pde_parab_1d_cd (d03pfc), nag_pde_parab_1d_cd_ode (d03plc) and nag_pde_parab_1d_cd_ode_remesh (d03psc)
d03pwc	7	nag_pde_parab_1d_euler_hll Modified HLL Riemann solver for Euler equations in conservative form, for use with nag_pde_parab_1d_cd (d03pfc), nag_pde_parab_1d_cd_ode (d03plc) and nag_pde_parab_1d_cd_ode_remesh (d03psc)
d03pxc	7	nag_pde_parab_1d_euler_exact Exact Riemann solver for Euler equations in conservative form, for use with nag_pde_parab_1d_cd (d03pfc), nag_pde_parab_1d_cd_ode (d03plc) and nag_pde_parab_1d_cd_ode_remesh (d03psc)
d03pyc	7	nag_pde_interp_1d_coll PDEs, spatial interpolation with nag_pde_parab_1d_coll (d03pdc) or nag_pde_parab_1d_coll_ode (d03pjc)
d03pzc	7	nag_pde_interp_1d_fd PDEs, spatial interpolation with nag_pde_parab_1d_fd (d03pcc), nag_pde_parab_1d_keller (d03pec), nag_pde_parab_1d_cd (d03pfc), nag_pde_parab_1d_fd_ode (d03phc), nag_pde_parab_1d_keller_ode (d03pkc), nag_pde_parab_1d_cd_ode (d03plc), nag_pde_parab_1d_fd_ode_remesh (d03ppc), nag_pde_parab_1d_keller_ode_remesh (d03prc) or nag_pde_parab_1d_cd_ode_remesh (d03psc)