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Solving multivariable mathematical models by the quadrature and cubature methods. (English) Zbl 0810.65141

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Utilization and generalization of quadrature and cubature approximations are presented for the numerical solution of mathematical models of multivariable transport processes which involve integral, differential and also integro-differential operators, and for numerical interpolation and extrapolation.

The developed methods are applied by solving two-dimensional steady-state and one-dimensional transient-state problems. The methods are compared by means of exact-analytical solutions. The quadrature and cubature approximations are simple and universal.

Reviewer: J.Kofroň (Praha)

MSC:

65R20 Numerical methods for integral equations
45K05 Integro-partial differential equations
82C70 Transport processes in time-dependent statistical mechanics

Cited in **21** Documents

Keywords:

quadrature and cubature methods; mathematical models; multivariable transport processes; integro-differential operators; interpolation; extrapolation

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