1046-49-2063     **Anna S Bulanova\*** (`ftasb1@uaf.edu`), PO Box 752592, Fairbanks, AK 99775, and **Sergei A Avdonin** and **Dmitri A Ovsyannikov**. *Optimal quadrature formulae related to solutions of initial boundary value problems.*

We present an approach to the construction of optimal quadrature formulae for classes of solutions of certain initial boundary value problems. Problems of maximization of an error functional over the set of integrands and optimization of quadrature weights for fixed nodes are considered. In cases when the set of integrands consists of solutions of an initial boundary value problem, optimal quadrature problems can be approached as problems of optimal control for partial differential equations. Several examples of parabolic initial boundary value problems are considered. We obtain estimates for an error in quadrature formulae and an optimality condition for quadrature weights. (Received September 17, 2008)

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