ON THE EFFICIENCY OF SOLVING OPTIMAL CONTROL PROBLEMS BY MEANS OF FAST AUTOMATIC DIFFERENTIATION TECHNIQUE

A. F. Albu, V. I. Zubov

A efficient method is introduced for solving the problems of optimal control of thermal processes with phase transitions. The following statement is formulated and proved: the time of computing the components of the gradient of the objective function by means of the proposed method does not exceed the time of computing two values of the function.

Keywords: optimal control, gradient, fast automatic differentiation, adjoint problem, Stefan problem.

A. F. Albu Cand. Phys.-Math. Sci., Dorodnicyn Computing Centre of the Russian Academy of Sciences, Moscow, 119333 Russia, e-mail: alla.albu@mail.ru .

V. I. Zubov Dr. Phys.-Math. Sci., Dorodnicyn Computing Centre of the Russian Academy of Sciences, Moscow, 119333 Russia, e-mail: zubov@ccas.ru .