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We consider the optimal control of general heat governed by an operator depend on an unknown parameter and with missing boundary condition. Using the notion of no-regret and low-regret control we prove that we can bring the average of the state of our model to a desired state. Then by means of Euler-Lagrange first order optimality condition, we expressed the optimal control in term of average of an appropriate adjoint state that we characterize by an optimality system. The main tools are the Lebesgue dominated convergence theorem and an appropriate Hilbert space endowed with a norm containing the average of the state. (Received September 08, 2018)