1113-35-92   **Heng Li*** (`h0li0018@louisville.edu`), Department of Mathematics, University of Louisville, Louisville, KY 40292, and **Jianrong Zhou**. *Direct and inverse problem for the parabolic equation with initial value and moving boundaries.*

In this paper, we deal with dual problem of a class of non-classical parabolic equations in which the boundaries are moving instead of fixed values, which arise from Ductal carcinoma in situ (DCIS). In the direct problem part, on using the several transformation and heat potential theory, we established the integral form of solution and proved the existence and uniqueness of solution. Then we consider the inverse problem of finding the control parameter of known moving boundaries, which means determining the potential function of model from incisional biopsy information in the view of DCIS. Algorithm and numerical simulation for both problems are included to demonstrate the validity and applicability of solutions. (Received August 13, 2015)