

# A generalized quasi-boundary value method for the backward nonlinear time-fractional diffusion problem in a cylinder

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April 6, 2022

## Abstract

In this paper, a backward problem for a nonlinear time-fractional diffusion equation in an axis-symmetric cylinder has been considered. Under some assumptions, we prove the existence and uniqueness of the solution to the nonlinear problem. The ill-posedness of the backward problem is established and we obtain the error estimates by a generalized quasi-boundary value regularization method.

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