Parameter Identification for Subdiffusion from Observation at an Unknown Terminal Time

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Time-fractional subdiffusion equations represent an important class of mathematical models with a broad range of applications. The related inverse problems of recovering space-dependent parameters, e.g., initial condition, space dependent source or potential coefficient, from the terminal observation have been extensively studied in recent years. However, all existing studies have assumed that the terminal time at which one takes the observation is exactly known. In this talk, we present uniqueness and stability results for three canonical inverse problems, e.g., backward problem, inverse source and inverse potential problems, from the terminal observation at an unknown time. The subdiffusive nature of the problem indicates that one can simultaneously determine the terminal time and space-dependent parameter.