

## On nonlocal problem for ultraparabolic equation

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In this paper ultraparabolic equation with two time variables is considered in abstract Hilbert spaces with nonlocal initial condition with respect to one time variable, which connects values of the unknown vector-function at initial and some subsequent point of the interval of this time variable. The existence and uniqueness theorem for the nonlocal problem is proved in suitable spaces of vector-valued distributions with values in Hilbert spaces. An iteration algorithm of approximation of solution of the nonlocal problem by a sequence of solutions of the corresponding classical problems is constructed and investigated. Applying general results obtained for the nonclassical problem in abstract Hilbert spaces nonlocal in time initial-boundary value problem for ultraparabolic equation is studied in Sobolev spaces.