Difference scheme for the parabolic equation

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Abstract: In this study, a first order of accuracy difference scheme for the approximate solution of the equation

$$\frac{du(t)}{dt} + Au = f(t),\ t > 0$$

in a Hilbert space H with self-adjoint operator A is presented. The well-posedness of this difference scheme is established. In fact, this eqution is one of the classical ones in the case when $t \in [0, T]$, but here $t > 0$. Applying this difference scheme some numerical solutions are given.

Throughout this note we mainly use techniques from our works [1, 2].

Keywords: Difference scheme, parabolic equation, stability, well-posedness

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References

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