Dear Editor,
I am sending you the manuscript entitled ‘‘A finite difference approximation for the solution of the space fractional diffusion equation” for consideration for publication in your journal, “Journal of Mathematical Extension”. This study has not been duplicated in a publication or submitted elsewhere.

The significance of this manuscript to the readers of this journal is as follows.

We presented a numerical solution based on the finite difference method for a one-dimensional space fractional diffusion equation in the sense of Caputo with the initial and boundary conditions. The consistency and stability of our method were proved. Then, the convergence of this scheme was proved by Lax’s equivalence theorem. Numerical tests show that the proposed scheme is accurate enough and the behavior of errors is linear.

I look forward to hearing from you at your earliest convenience.
Thanks for your evaluation.
Best Regards,
Haniye Hajinezhad