Transport equation on semidiscrete domains

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We deal with the transport equation on semidiscrete domains, i.e. with a partial differential equation where we combine continuous and discrete variables. First, we focus on the linear problem. We study the sign, sum and integral preservation for the transport equation with discrete space and continuous time and for the opposite problem with continuous space and discrete time and their consequences for the probability theory. Further, we analyze the nonlinear transport equation with discrete space and continuous time. We concentrate on the existence and uniqueness results and derive the maximum and minimum principles with their applications.

References

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