Parabolic equations with Caputo time derivative

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Abstract

In this talk we report results presented in [1] about well-posedness of fully nonlinear Cauchy problems in which the time derivative is of Caputo type. We address this question in the framework of viscosity solutions, obtaining the existence via Perron's method, and comparison for bounded sub and supersolutions by a suitable regularization through inf and sup convolution in time. As an application, we prove the steady-state large time behavior in the case of proper nonlinearities and provide a rate of convergence by using the Mittag-Leffler operator.

Joint work with:
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References

[1] Topp, Erwin and Yangari, Miguel, *Existence and uniqueness for parabolic problems with Caputo time derivative.* J. Differential Equations 262 (2017), no. 12, 6018-6046.

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