Research

Analysis Seminar

# Few results related to functional differential equations with state–dependent delays

**Henrique Costa dos Reis**
Universidade de Brasília

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**Abstract**. In this lecture, we illustrate briefly a series of results related to functional differential equations with state–dependent delay. Divided in two parts, it starts presenting results of existence of mild solutions for the delayed functional differential equations with state–dependent delays using fixed points of the solution operator of a functional differential equation with time–dependent delay. In the second part, we focus on the class of measure functional differential equations with state–dependent delay. For them, we expose results of existence and uniqueness of solutions, the periodic averaging method and the correspondence between these equations and the generalized ordinary differential equations.

## References

[1] C. Gallegos, H. Henríquez and J. G. Mesquita, Measure functional differential equations with infinite time–dependent delay, submitted.

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[3] J. G. Mesquita, A. Slavík, Periodic averaging theorems for various types of equations, *J. Math. Anal. Appl.*, 387 (2012), 862-877.

[4] G. A. Monteiro, A. Slavík and M. Tvrdý, *Kurzweil–Stieltjes Integral: Theory and Applications*, World Scientific, Series in Real Analysis, vol. 15, 2018.