

**Continuous dependence of solutions on a parameter  
of abstract generalized linear differential equations  
(Opial type results)**

Giselle A. Monteiro  
Prague, Czech Republic

In this work we continue our research from [1] on continuous dependence on a parameter  $k$  of solutions to linear integral equations of the form

$$x(t) = \tilde{x}_k + \int_a^t d[A_k]x + f_k(t) - f_k(a), \quad t \in [a, b], k \in \mathbb{N}, \quad (eq_k)$$

where  $A_k : [a, b] \rightarrow L(X)$  have bounded variations on  $[a, b]$ ,  $f_k : [a, b] \rightarrow X$  are regulated on  $[a, b]$  and  $\tilde{x}_k \in X$ , with  $X$  being a Banach space. The integrals are understood as the abstract Kurzweil-Stieltjes integrals and the studied equations are usually called generalized linear differential equations (in the sense of J. Kurzweil)

Focusing our attention on the case when the variations  $\text{var}_a^b A_k$  need not be uniformly bounded, we extend Theorem 4.2 from [1], which is an analogy of the classical Opial's result for ODEs. Finally, we provide an example showing that the obtained conditions are somehow optimal.

This talk is based on a joint work with Milan Tvrdý.

## References

- [1] MONTEIRO G.A. AND TVRDÝ M.: Generalized linear differential equations in a Banach space: Continuous dependence on a parameter. *Discrete Contin. Dyn. Syst.* **33** (1) (2013), 283–303, doi:10.3934/dcds.2013.33.283.
- [2] MONTEIRO G.A. AND TVRDÝ M.: Continuous dependence of solutions of abstract generalized linear differential equations with potential converging uniformly with a weight. *submitted*