Seminário de Análise

Existence and uniqueness of the solutions for impulsive Volterra Stieltjes equations and impulsive Volterra equations on time scales

Rogelio Grau acuña
Universidad del Norte, Barranquilla-Colombia

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Abstract. In this talk, we present results on existence and uniqueness of the solutions for impulsive Volterra Stieltjes equations of type

$$
\begin{aligned}
x(v) - x(u) &= \int_{t_0}^{v} a(v-s)f(x(s),s)\,\mathrm{d}g(s) \\
&\quad - \int_{t_0}^{u} a(u-s)f(x(s),s)\,\mathrm{d}g(s), \ \ \text{for } u,v \in J_k, \ k \in \{0,\dots,m\}, \\
\Delta^{+}x(t_k) &= I_k(x(t_k)), \ \ k \in \{1,\dots,m\}, \\
x(t_0) &= x_0,
\end{aligned}
$$

considering more general conditions on functions f, g and a by using the correspondence between the solutions of these equations and the solutions of Volterra Stieltjes equations. Moreover, we prove these results for impulsive Volterra equations on time scales, using the correspondence between the solutions of these last equations and the solutions of impulsive Volterra Stieltjes equations.