



The Department of Mathematics
Presents

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2:00PM – 3:00PM

PB 138

On the Smoothness of Weak Solutions of an Abstract Evolution Equation with a Scalar Type Spectral Operator

Abstract:

For the abstract evolution equation

$$y'(t) = Ay(t), \quad t \geq 0,$$

with a *scalar type spectral operator* A in a complex Banach space, we are going to discuss conditions on A *necessary and sufficient* for all *weak solutions* of the equation, which a priori need not be differentiable, to be strongly *infinite differentiable* or *Gevrey ultradifferentiable* (in particular, *analytic* or *entire*) on $[0, \infty)$ or $(0, \infty)$ and analyze certain interesting effects of their *smoothness improvement*.

The fresh results on the Gevrey ultradifferentiability are to be announced for the first time.