

Math Department Colloquium

Spring 2015

On the Smoothness of Weak Solutions of an Abstract Evolution Equation with a Normal Operator

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Thursday, February 19, 2015. 3:00 - 4:00 PM, S2 314

In this survey exposition representing a characteristic segment of the reporter's research, we shall see that the use of the well-known exponential formula

$$y(t) = \exp(tA) f$$

can be naturally extended to the case of a *normal operator* A in a complex Hilbert space H to describe *generalized (weak) solutions* of the evolution equation

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

We are also going to consider conditions necessary and sufficient for the *weak solutions*, which a priori need not be differentiable, to be *infinite differentiable and ultradifferentiable in the Gevrey sense* (in particular, *analytic* or *entire*) on $[0, \infty)$ or $(0, \infty)$ and observe certain interesting effects of their *smoothness improvement*.

If you need a disability-related accommodation or wheelchair access information, please contact Oscar Vega at (559) 278-4903 or e-mail ovega@csufresno.edu. Requests should be made at least one week in advance of the event.