



College of Science and Mathematics  
Department of Mathematics

# ***SPRING 2015 MATHEMATICS RESEARCH SEMINAR***

***On the Mean Ergodicity of Bounded Weak Solutions  
of an Abstract Evolution Equation - Part 2***

***Marat Markin, Ph.D.***  
(CSU, Fresno)

**Thursday, May 7, 2015 @ 1:00PM in S2 309**

One of the primary questions of the *qualitative theory* of differential equations is that of behavior of solutions at infinity.

For the abstract evolution equation

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

with a densely defined closed linear operator  $A$  in a complex Banach space  $X$ , we are to find conditions formulated exclusively in terms of the space or/and the operator and sufficient for the *Cesàro means*

$$\frac{1}{t} \int_0^t y(s) ds$$

of every bounded weak solution  $y(\cdot)$  of the equation to converge at  $\infty$ .

We shall consider the cases of a *reflexive* space and a *scalar type spectral operator*, in particular, a *normal operator*, in a complex Hilbert space.