



**Fall 2020**  
**Math Department Seminar Series**

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(Fresno State)

*On Weak Spectral Mapping Theorems,  
Spectral Structure and Asymptotics  
of  $C_0$ -Semigroups  
Generated by Scalar Type Spectral Operators*

**Abstract**

We establish a *weak spectral mapping theorem* for scalar type spectral operators and apply it to extend a *weak spectral mapping theorem* and the *generalized Lyapunov stability theorem*, known to hold for the  $C_0$ -semigroups of normal operators on complex Hilbert spaces, to the more general case of  $C_0$ -semigroups of scalar type spectral operators on complex Banach spaces. For such semigroups, we also reveal finer spectral structure, obtain exponential estimates, and establish an analogue of the *Gearhart-Prüss-Greiner characterization* of the uniform exponential stability for  $C_0$ -semigroups on complex Hilbert spaces.

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**Friday, October 30, 2020 @ 9am**  
**Zoom Link** <https://fresnostate.zoom.us/j/81813659648>  
**Zoom Meeting ID** 818 1365 9648