1125-41-967 **Michael C. Northington*** (mcnv3@gatech.edu), **Doug Hardin**, **Alexander Powell** and **Shahaf Nitzan**. *Balian-Low Type Theorems for Shift-Invariant Spaces.*

When shift-invariant spaces and Gabor systems are used as approximation spaces, it is advantageous for the generators of such spaces to be localized and for the spaces to be representative of a large class of functions. However, the celebrated Balian-Low Theorem shows that if a Gabor system generated by a function forms an orthonormal basis for $L^2(\mathbb{R})$, then the function must be poorly localized in either time or frequency. In this talk, I will discuss similar restrictions on the generators of finitely-generated shift-invariant spaces. In particular, I will show that if the integer translates of a well-localized function, $f \in L^2(\mathbb{R}^d)$, form certain types of bases for the shift-invariant space generated by f, then this space cannot be invariant under any non-integer shift. (Received September 13, 2016)