1125-46-2193   **Valerie N. Nelson*** (`vnelson75@gmail.com`), 8107 Mandan Terrace, Greenbelt, MD 20770.
Existence Results for Some Higher-Order Abstract Differential Equations with Applications to PDEs.

In this talk, we first introduce a new class of functions called $C^{(n)}$-pseudo-almost automorphic functions, which generalizes the concept of $C^{(n)}$-almost automorphy (respectively, $C^{(n)}$-almost periodicity. Next, we present some of their properties and study their generalization called Stepanov-like $C^{(n)}$-pseudo-almost automorphy. Our next task consists of examining the existence of such solutions to some non-autonomous higher-order systems of differential equations in $C^{(r)}$-pseudo-almost automorphic spaces and intermediate spaces.

Our third task consists of studying the existence of $C^{(r)}$-pseudo-almost automorphic and Stepanov-like $C^{(r)}$-pseudo-almost automorphic solutions in intermediate spaces to some general higher-order differential equations with operator coefficients. We consider cases when the forcing term is either $C^{(m)}$-pseudo-almost automorphic and Stepanov-like $C^{(m)}$-pseudo-almost automorphic.

To illustrate the above-mentioned results, we close by examining the existence of $C^{(m+1)}$-pseudo-almost automorphic solutions to some damped second-order abstract differential equations and then to some (second order in time and fourth order in space) PDEs. These results represent work advised by Toka Diagana. (Received September 19, 2016)