1145-65-978 **Efstathios Georgios Charalampidis*** (charalamp@math.umass.edu), 196 N Pleasant St, Apartment 4, Amherst, MA 01002. *Peregrine solitons and gradient catastrophes in continuum and discrete models: Theory and Computation.*

In this talk, we will discuss the dynamics of rogue waves in nonlinear Schrödinger (NLS) equations and discrete variants thereof. Initially, we will consider NLS equations with variable coefficients which can be converted into their integrable siblings by utilizing suitable transformations. Then, the Peregrine soliton will be fed to the transformation employed. Using direct numerical simulations, the formation of such soliton solutions will be presented. Subsequently, and in the realm of atomic Bose-Einstein Condensates (BEC), the IBVP with Gaussian wavepacket initial data for the scalar (NLS) will be discussed where some novel features will be presented. In particular, it will be shown that as the width of the relevant Gaussian is varied, large amplitude excitations strongly reminiscent of Peregrine solitons or regular solitons appear to form. This analysis will be complemented by considering the Salerno model interpolating between the discrete NLS (DNLS) and Ablowitz-Ladik (AL) models where similar phenomenology is observed. The findings presented in this talk might be of particular importance towards realizing experimentally extreme events in BECs. (Received September 17, 2018)