1116-91-1634 **Nina Galanter*** (galanter@grinnell.edu), **Dennis Silva, Jr.** (dssilva@wpi.edu), **Jonathan Rowell** (jtrowell@uncg.edu) and **Jan Rychtář** (rychtar@uncg.edu). *The Territorial Raider Model with Strategic Movement and Multi-Group Interactions.*

We analyzed the territorial raider game, a graph based competition for resources, with strategic movement. First we investigated the game in which players are treated as individual organisms. Utilizing a machine learning algorithm, we discovered that the only strict nash equilibrium strategy sets occur when all players raid one another and players do not compete with one another. This indicates equilibria are generated by derangement functions of a graph. Thus, we found that a graph will permit a derangement if and only if it permits a strict Nash equilibrium. We then extended the game to the case where players are "hives" or "armies" which can divide themselves among multiple territories. We examined this division of armies both in the discrete and continuous cases. Our results include Nash equilibria for regular graphs and regular bipartite graphs in both of these cases. Our results suggest that while group entities defend in more cases than in the individual organism game, the portion of a group defending varies based on the degree of vertices and the advantage given to owners in protecting resources. (Received September 20, 2015)