1003-92-1093 **William H Sulis** (`sulisw@mcmaster.ca`), 255 Townline Rd E, RR5, Cayuga, Ontario N0A1E0, Canada, and **Irina N. Trofimova*** (`trofimova@nm.ru`), 92 Bowman St, Hamilton, Ontario L8S2T6, Canada. *Random Graphical Dynamical Systems.*

Random graphical dynamical systems (RGDS) are a class of complex systems models in which a collection of agents establishes, by virtue of specific decision processes, connections among themselves. These models have been studied in the context of the emergence of functionality and diversity within a collective of complex systems. A RGDS model generates a time series of connection graphs. Standard random graph models generate a limiting graph structure for analysis. RGDS models generate a stationary distribution of graphs whose structures are then analyzed. Several distinct classes of RGDS have been studied. Among these models, sociability (maximum vertex degree) has been found to be a significant control parameter. A simple example to illustrate this will be presented. Sociability in this model determines a phase transition whose order parameter is the fraction of vertices participating in a maximal connected cluster. A similar phenoemon occur in random graph models but there the maximal connected cluster is static whereas in this model these clusters are dynamic. Moreover the scaling exponent in the this model is 0.6, in contrast to 1.0 in the case of random graphs. (Received October 03, 2004)