A Study of Self-Organization in Small Systems with Simple Dynamics J. M. REJCEK, University of Texas at Arlington, WILLIAM J. B. OLD-HAM, JR., Texas Tech University — Self-organization in small systems of particles with simple dynamic laws has been simulated. For the two kinds of systems studied, the motion and the final system state for various dynamic iterations are presented. In the first system design, two kinds of particles are simulated. Like particles have a repulsive force while unlike particles have an attractive force. Initially, the particles are randomly distributed in a two dimensional square bounded region, and then allowed to dynamically interact for a number of iterations. Using the inverse square force, modified at short distances, most cases result in equilibrium with the particles paired off. In the second system design, there are two groups of particles initially separated by a boundary. Each side's particles are further divided into two groups. The forces among all of the particles can be defined to study their dynamics. PACS numbers: 02.70.-c, 02.60.Cb

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Date submitted: 29 Mar 2021   Electronic form version 1.4