1125-60-1609   **Asma Azizi*** (`aazizibo@tulane.edu`), 1740 baronne street, ap#450, new orleans, LA 70113, **James Mac Hyman** (`mhyman@tulane.edu`), department of Math, tulane university, new orleans, LA 70118, and **Jeremy Dewar** (`jdewar@tulane.edu`), department of Math, tulane university, new orleans, LA 70118. *A Bipartite Network Generation Using Joint Degree Distribution.* Preliminary report.

In this work, we propose a new algorithm to construct bipartite network using joint degree (degree-degree) distribution. Bipartite networks are a representation of many different real-world interactions, such as actor-movie networks, authoring networks, occurrence networks, and sexual partnership networks. Despite the huge application of bipartite network, a few work has been done on construction of them which mostly use average degree or degree distribution. We propose a new algorithm for construction of bipartite networks, and demonstrate the ability of this algorithm to preserves some properties of networks like degree distribution of nodes and degree distribution of neighbors, i.e degree and joint degree distributions. We implement our algorithm on some real world networks, including romance network. We demonstrate that in cases that average degree of nodes is low, particularly for romance network or any other sexual partnership networks, our generated network predict with surprising accuracy the behavior of the real world, while in other cases there is a measurable discrepancy between random and real ones, indicating the essence of considering additional social structure that is not captured by the random network. (Received September 18, 2016)