We proposed a continuous network model for the path-finding problem [1,2]. Network nodes are excitable systems of the FitzHugh-Nagumo type that have three equilibrium states depending on input from other nodes. The proposed system can find a solution robustly in a high-dimensional phase space, and has a self-recovery property, i.e., the system can find a path when one of the connections in the existing path is suddenly terminated. Further, we demonstrate that the appropriate installation of inhibitory interaction improves the search time.

References