1135-90-1080   **Gary R Engler*** (`gengler@stevens.edu`), 1 Castle Point on Hudson, Stevens Institute of Technology, Hoboken, NJ 07030, and **Michael Zabarankin**, 1 Castle Point on Hudson, Stevens Institute of Technology, Hoboken, NJ 07030. *Shortest Path Computations in Stochastic Neural Systems.*

A neuromorphic algorithm capable of solving the shortest path problem on pre-learned graph structures is proposed. The generated network structure implements a network of stochastic spiking neurons where in the stable distribution of network states the shortest path corresponds to the network state with the highest probability. The networks behavior of activity representing potential paths corresponds to recent biological results. Numerical results confirming the theoretical portions are given. (Received September 19, 2017)