Beeping networks abstract networks of exceedingly-simple computation devices such as brain cells of flies or ants in colonies. Devices in these networks have limited communication capabilities, namely, they can only emit a pulse of energy or sense the channel for a pulse of energy.
In this talk, I will discuss two recent results in the beeping model. The first result concerns finding shortest paths between a designated source node and one or more destination nodes. It relies on an interesting combinatorial technique of bipartite decomposition of hypergraphs. The second result shows how to conduct computations over beeping networks that suffer from channel noise, i.e., where beeps appear or get lost with a certain probability. It turns out that O(log n) overhead suffices to obtain both noise resilience and the ability to detect collisions, yielding even faster algorithms.