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Gary K Nave* (gary.nave@colorado.edu), **Hadley Tallackson** and **Orit Peleg**. *Modeling decision-making in honey bee swarm formation.*

While a western honey bee (*Apis mellifera*) colony searches for a new nest site, the individuals will aggregate together into a swarm. Honey bee swarms, comprising roughly 10,000 individual bees, attach to tree branches or other surfaces and hang freely while scouts decide on a new nest site. Through agent-based modeling methods, we explore what individual decisions may lead to swarm formation and compare these candidate models to experimental observations of honey bee swarm formation. This exploration will connect local interactions with the resulting emergent behavior for various systems in order to address how a large number of individuals with limited cognitive abilities achieve large-scale results. This work informs both our basic understanding of collective behavior in biological systems and potential applications to multi-agent robotic systems. (Received September 17, 2019)