



## **Flexibility without plasticity: individual crop loads locally govern collective food intake regulation in *Camponotus sanctus* colonies**

Author(s): Lior Baltiansky, Efrat Greenwald , Lior Baltiansky , Ofer Feinerman

Institution(s): Department of Physics of Complex Systems, Weizmann Institute of Science, Rehovot, Israel ; Department of Physics of Complex Systems, Weizmann Institute of Science, Rehovot, Israel ; Department of Physics of Complex Systems, Weizmann Institute of Science, Rehovot, Israel ; Department of Physics of Complex Systems, Weizmann Institute of Science, Rehovot, Israel

In social insects, colony-level regulation of food intake is achieved as foragers adjust their activity according to the nutritional state of their colony. This adjustment could either result from behavioral plasticity at the level of individual foragers, or alternatively emerge from colony-level processes. Resolving this ambiguity calls for measuring food flow on both the colony scale and the individual scale. Here we imaged fluorescent liquid food in individually tagged ants to track individual crop loads and examine the behavior of the foragers as they bring in food to their colonies. Our findings show that even if foragers use fixed behavioral rules, this can produce flexible adaptation to the dynamically changing state of the satiating colony. \*The discussed results are based on “Individual crop loads provide local control for collective food intake in ant colonies”, (eLife, in print).