

MIMS現象数理カフェセミナー

日時：2020年10月21日(水) (13:30 - 14:10)

場所：今年度はZoomでのリモート開催となります

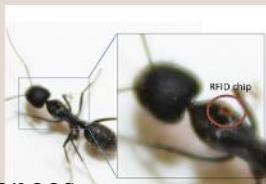
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Intelligent Group Behavior by Un-intelligent Individuals:

Autonomous Task Allocation Dynamics of Foraging Ants

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Abstract: Ants have evolved to the present forms from the same ancestor with bees, through which evolution process they have simplified their own structure and the behavior of each. In the ongoing study, we introduced a new experimental method to analyze the statistical behavior of colonies of ants using very-tiny RFID tags attached to the bodies of all ants to recognize each. By analyzing the obtained “big-data of ant society” after more than three-months continuous measurement, we found various kinds of statistical structure of the ant society in which sophisticated task allocation among ants and its dynamical reorganization took place.



RFID tag on the back of an ant



An ant moving under a sensor

References

[1] O. Yamanaka, M. Shiraishi, A. Awazu, H. Nishimori: Verification of mathematical models of response threshold through statistical characterisation of the foraging activity in ant societies', Scientific Reports 9 (1), 8845 (2019).

[2] E. Bonabeau and Marco Drigo and Guy Theraulaz, SWARM INTELLIGENCE From Natural to Artificial Systems (Oxford University Press, 1999).



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