第9回工学院特別セミナー

The 9th Special Research Seminar of School of Engineering

『Ant rafts and maggot flows』

by

Dr. David L. Hu

Associate Professor of Mechanical Engineering and Biology
and Adjunct Professor of Physics
Georgia Institute of Technology

Date & time: August 29, 2018 (Wednesday), 14:00-15:00

Venue: Room S516, South building #5 in Ookayama Campus

Abstract: We present two model systems for studying swarm behavior in insects. Fire ants link their bodies together to build waterproof rafts to survive floods. We conduct mechanical tests to show that ant rafts can flow like a liquid or spring back like a solid. These properties can enhance their chance of survival on rough waters. In contrast, the black soldier fly larva is an insect that lives on dry land, but deals with large numbers of its neighbors as it feeds on rotting fruit and carcasses. When feeding around food objects, we show that the maggots generate coherent flows, which can increase the average feeding rate of the colony. In both systems, the continuous motion of insects leads to many of the desirable properties observed.

Brief Bio: Dr. David Hu is a mechanical engineer who studies the interactions of animals with water. He has discovered how dogs shake dry, how insects walk on water, and how eyelashes protect the eyes from drying. Originally from Rockville, Maryland, he earned degrees in mathematics and mechanical engineering from M.I.T., and is now Associate Professor of Mechanical Engineering and Biology and Adjunct Professor of Physics at Georgia Tech. He is a recipient of the National Science Foundation CAREER award for young scientists, the Ig Nobel Prize in Physics, and the Pineapple Science Prize (the Ig Nobel of China). He is the author of the book "How to walk on water and climb up walls," published by Princeton University Press. His work has been featured on NHK Gatten!