IGER seminar / アドバンス生命理学特論

Neuroethology of the dance language in honeybee

Dr. Hiroyuki Ai
藍　浩之　博士
Department of Earth System Science, Fukuoka University

Oct 27th, 2016
14:00-15:30
Room E131,
School of Science

Being capable of language, we humans can express our ideas infinitely and have succeeded in developing advanced cultures. On the other hand, do animals besides Homo sapiens have a language? Indeed, animals do communicate each other by using species-specific signs, like vocal signals of dolphins, whales and of songbirds that present signs of meanings. Specifically, animals that live in large complex societies show very interesting communication behaviors. One such example is the honeybee, where a bee just returning from successfully foraging for flowers performs the " Waggle Dance" to inform the profitable location of the flower patch to its hive mates. Karl von Frisch, who gave the dance its name, demonstrated that the dance followers are recruited to the advertised flower by the waggle dance. He further proved, using behavioural studies, that the different components of the waggle dance have specific meanings (Nobel prize in 1973). Since then it has been suggested that the air-borne vibrations caused by wingbeats exerted during the waggle dance encode the vector information indicating to the flower patch. However the question still remains: "How does the dance follower decipher the vector information in the brain?" In this seminar, I will summarize the ethological studies about the dance language of the honeybee and introduce recent studies investigating the neural mechanisms for encoding and decoding the language. Finally I will discuss the common characteristics and neural circuits that process auditory signals in the honeybee and in the fruit fly.

Talk in English

Contact: Azusa Kamikouchi
(kamikouchi@bio.nagoya-u.ac.jp)