ELSC Seminar: Tsevi Beatus - Jan. 12, 2017 at 17:00

January 12, 2017

Flight control in insects

ELSC cordially invites you to the lecture given by:

Tsevi Beatus

Department of neurobiology and school of computer science and engineering here at the Hebrew University.

On the topic of:

Flight control in insects

The lecture will be held on Thursday January 12th, 2017 at 17:00

at ELSC: Silberman Bldg., 3rd Wing, 6th Floor,

Edmond J. Safra Campus

Light refreshments served at 16:45

Abstract:

Flying insects can perform a wide array of extreme aerial maneuvers with exquisite accuracy and robustness, outmaneuvering any man-made flying device. A flapping insect is a nonlinear dynamical system subject to fast-growing mechanical instabilities that must be controlled to allow flight. Hence, similar to balancing a stick on one’s fingertip, flapping flight is a delicate balancing act made possible only by ever-
present, fast corrective actions. In this talk we will present a perturbation experiment with free-flying fruit flies that elucidates how flies control their rotational degrees of freedom: yaw, pitch and roll. Along roll, for example, flies respond to mechanical perturbations within a single wing-beat, or 5 milliseconds, making this correction reflex one of the fastest in the animal kingdom. These results, along with initial evidence for nonlinear control mechanisms, pose insect flight control as a potential model system for studying the neural mechanism of such fast stabilization reflexes.

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