

Effect of visual stimuli on the air-puff evoked escape behavior of the cricket *Gryllus bimaculatus*

Kazunori Tokue¹, Noriyasu Ando¹, Susumu Fujita², Toshiyuki Ando², Hirokazu Takahashi¹, and Ryohei Kanzaki¹

¹Research Center for Advanced Science and Technology, The University of Tokyo, Japan, ²Mobility Service Laboratory, Nissan Research Center, Nissan Motor Co., Ltd., Japan

Crickets escape toward the opposite direction to that of an air-puff stimulus when they are not walking. Though this reflex-like behavior is robust, it is unknown whether they perform the same behavior in the presence of other sensory information. We investigated the influence of visual stimuli on the escape behavior employing electrophysiological technique. We measured neuronal activities of the nerve comprising motoneurons of the middle leg in response to the air-puff and optic flow moving right or left. Since activities of several recorded units showed directional selectivity to the air-puff directions, we regarded the activities as representatives of the escape behavior. Our result indicated that the air-induced directional selectivity was altered by optic flow. Therefore we think that although the air-puff stimuli strongly trigger the escape, escape directions are affected by visual information. To confirm possible functions of our physiological data, we will conduct behavioral experiments.