PhD in insect evolution & behaviour

Macquarie University, Sydney, Australia & University of Groningen, The Netherlands

We offer a PhD opportunity aligned with a recently Human Frontiers Science Program-funded project into the evolution of butterfly coloration. The natural world is resplendent with colour signals that are used by animals and plants to communicate. Most of these signals are matte in appearance, but there are also repeated instances where these signals appear glossy or shiny. The ability to produce a shiny colour signal results from dedicated and often highly complex features of a reflecting surface. Compared to variation in other signalling features, for example colour, we however have a limited scientific understanding of the ultimate function of variation in signal shininess. This project aims to explore and define the function of this important yet understudied dimension of visual communication in *Papilio* and *Eurema* butterflies.

Your PhD project involves:

- o Fieldwork in tropical Australia (Cairns – pictured)
- o Laboratory husbandry of butterflies
- o Behavioural experiments
- o Optical analyses of butterfly wings

This PhD is a double-degree programme between Macquarie University and University of Groningen. You will be based primarily at Macquarie University, but will spend at least 12 months at the University of Groningen. Upon completion, you will receive a double degree PhD.

Scholarship funding

The position includes a full tuition scholarship plus a living allowance of AU$32,000+ p.a.. Generous funding is provided for research and international travel.

Closing date is 30 October 2023; the candidature should commence 1 February 2024.

We encourage interested, high quality candidates to contact us directly:

Prof. Darrell Kemp
Department of Biological Sciences, Macquarie University, Australia
Email: darrell.kemp@mq.edu.au

Dr Casper J. van der Kooi
University of Groningen, The Netherlands
Research: https://www.rug.nl/staff/c.j.van.der.kooi/research
Email: C.J.van.der.Kooi@rug.nl

PhD on the visual and chemical ecology of flowers

University of Groningen, The Netherlands

We offer a PhD opportunity funded by the Dutch Research Council (NWO) on flower evolution. The plant kingdom offers a bewildering diversity in flower colour and scent. This project studies how floral visual and olfactory signals have co-evolved with pollinator ecology and physiology. It will investigate how floral signals convey information on the type and composition of floral rewards, using techniques from optics, analytical chemistry, and evolutionary ecology.

Your PhD project involves:

- o Spectroscopy and microscopy to study colour
- o Chemical analytical techniques to study floral scent, pollen and nectar
- o Greenhouse growing experiments

The candidate will be employed at the University of Groningen for four years. The position includes funding for personal training and travel. Our labs are based at the Groningen Institute for Evolutionary Life Sciences in the city of Groningen, which is located in the northern part of the Netherlands and has a vibrant (student) life.

The candidature should commence early 2024.

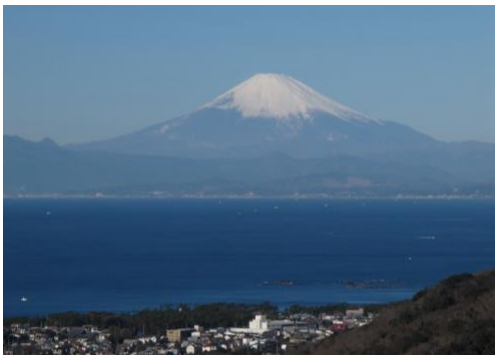
We encourage interested, high-quality candidates to submit a cover letter as well as a CV including contact information for 1-2 referees to both supervisors:

Dr. Kira Tiedge: k.j.tiedge@rug.nl

Dr. Casper J. van der Kooi: c.j.van.der.kooi@rug.nl

Postdoc in Neuroethology of insect vision

Research Center of Integrative Evolutional Science, SOKENDAI. Japan



We offer opportunities of post-doctoral fellow aligned with a Human Frontiers Science Program-funded project into the communication between visual signals of flowers and butterflies. We especially focus on the shiny (glossy or flashy) signal, which is still limitedly understood and explore the production, detection and neurobiological processing of the signals.
The Kinoshita Lab challenges to understand neural processing of the shiny signals in brilliant colours by neuroethological approaches. The model system for the project is the Japanese yellow swallowtail butterfly, *Papilio xuthus*, whose color vision system has been studied extensively. We will investigate the neural system for shiny signals: intensity, polarization and flickering signal beside of wavelength information.

The postdoc project involves:

- o Intracellular recording with dye injection to reveal encoding the visual information
- o Brain anatomy to investigate the neural circuits
- o Indoor behavioural experiments to test visual perception

We also welcome candidates who have little experience in neurophysiological experiments and will fully support to acquire the techniques through the project.

Fellowship funding

The salary will be determined based on the SOKENDAI rule.
Generous funding is provided for research and international and domestic travels.

The candidate will join the group by 1st October 2024 at the latest. The recruitment will be terminated once the suitable candidates are found.

We encourage interested, high quality candidates to contact us directly:

Dr. Michiyo Kinoshita
Associate professor
Neuroethology lab, Rcies, SOKENDAI_Hayama, Japan
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International Human Frontier Science Program Organization