Ref: 2016 13 LA/Self-funded

SELF-FUNDED PHD STUDENTSHIP

Duration: 3 or 4 years full-time

Eligibility:

- **THIS STUDENTSHIP IS OPEN TO SELF-FUNDED STUDENTS ONLY; you must have access to your own funding, either from your home country or your own finances**. Typical cost of living expenses will be approximately £17,000 per year. Bench fees will be approximately £6,000 per year. University tuition fees will be dependent upon the registering university. Please contact studentship@pirbright.ac.uk for further information.
- This studentship is open to science graduates (with, or who anticipate obtaining, at least a **2.1 or equivalent in a relevant biological subject in their undergraduate degree, or a Masters degree - subject to university regulations)**. You should be looking for a challenging, interdisciplinary research training environment and have an active interest in the control of infectious diseases.
- Students without English as a first language must provide evidence that they meet the English language requirement, e.g. **with an IELTS score of 7.0 and no less than 6.5 in any of the subsections**.

Principal Supervisor: Professor Luke Alphey, The Pirbright Institute
Registering University: TBC

Overview of project area:

Professor Alphey's research group aims to develop novel genetic tools for the introgression of genetic (transgenic) traits into wild populations of pest insects [see *Alphey (2014) Ann Rev Entomol 59:205-224* for overview of such **genetic control** in the context of mosquitoes]. This has potential applications in **public health** (e.g. mosquitoes), **agriculture** and **conservation biology**, for example. Projects are potentially available in each of these areas.

We take a **synthetic biology** approach to strain development. This includes the use of modular components which can be combined to give predictable results – or at least that is the ambition; these are quite early days for insect synthetic biology. We also aim for inter-species operability of designs and components, to avoid having to "reinvent the wheel" for each new species. Development of new genetic systems therefore typically includes development and validation of molecular components, as well as of novel genetic circuits and of insect strains carrying them.

We work primarily with the mosquito *Aedes aegypti* and the diamondback moth *Plutella xylostella.* Both are experimentally tractable and also globally important; *P. xylostella* as a major agricultural pest and *Aedes aegypti* as the key vector of dengue, yellow fever, Zika and other viral pathogens. We are also interested in developing genetic control methods for another mosquito species, *Culex quinquefasciatus*, for conservation purposes as this mosquito, through transmitting avian malaria, is contributing to loss of unique bird species in Hawaii. Other species could be added to this mix as appropriate for specific applications.

Potential students are welcome to discuss possibilities within the lab's overall interest in genetic pest management. Please email studentship@pirbright.ac.uk in the first instance.