



BIG4-based PhD positions in Beetle Systematics and Evolution



We are pleased to announce **five PhD positions** targeting exciting projects in **beetle systematics**. Three of them (projects 1–3, see Page 2) are available at Alexey Solodovnikov's research group and two (projects 4 and 5, see Page 2) at Martin Fikáček's research group.

General information and guidelines for applications

Students conducting projects 1–3 will be based at the Natural History Museum of Denmark at the University of Copenhagen with A. Solodovnikov as the main academic advisor. Students conducting projects 4 and 5 will be based at Charles University in Prague and associated with National Museum there with M. Fikáček as the main academic advisor. At the same time all students will be part of the BIG4 international cross-disciplinary training consortium (BIG4: 'Biosystematics, Informatics and Genomics of the 4 big insect groups') funded by the European Union Marie Skłodowska-Curie Innovative Training Network Program (for details about BIG4 see Page 3).

All five projects offered here vary in scope and methods, but any of them involve combination of classical methods of systematics with innovative techniques and approaches. All projects involve travels and field work. Positions are for 3 years at the University of Copenhagen, or 4 years at Charles University, with very competitive salary (base rate 3,110 € per month), additional family allowance for married students, and sufficient research funds.

For any of the projects we seek highly motivated applicants from any country of the world. Due to the requirements of the Marie Skłodowska-Curie Program applicants should not hold PhD degree and, at the time of enrollment in the respective PhD program in Denmark or the Czech Republic, should have less than 4 years of research experience (counted as time of employment in research since receiving a degree allowing enrollment in the PhD program). Additionally, at the time of recruitment applicants must not have resided or carried out his/her main activity (work, studies, etc.) in the country of the host for more than 12 months in the 3 years before his/her recruitment for the PhD project.

Application should include: 1) your letter of motivation, 2) CV including your e-mail address and other contact data as well as contact details of 1-3 referees who already know you as a student or employee, 3) list of publications including submitted or in press papers, if any, and 4) transcript of BSc, or MSc diploma, or equivalent. It is desirable that in your letter of motivation you rank the offered projects according to your order of priority.

- Applicants willing to conduct projects 1-3 should upload their application at the [job portal](#) of the University of Copenhagen, preferably as a single file in PDF format (positions will appear at job portal system shortly).
- Applicants willing to conduct projects 4-5 should send their application directly to Martin Fikáček (mfikacek@gmail.com).

The deadline for applications is March 1, 2015.

We will try to assess all applicants within 2-3 weeks after the deadline and conduct telephone or Skype interviews with shortlisted candidates immediately after the assessment. Successful candidates will be offered PhD positions and instructed about further enrollment formalities. We expect all students to be enrolled in the respective PhD programs and moved to either Denmark or Czech Republic by early-late summer 2015 at the latest.

English is commonly spoken language in Denmark and is official work language at the University of Copenhagen. Although it is less wide-spread in Czech Republic, English is the working language at Fikáček lab. You are welcome to address any questions about application process, projects, BIG4, or work and life conditions directly to either of us any time.

Sincerely,

Alexey Solodovnikov
e-mail: asolodovnikov@snm.ku.dk
[Alexey's lab/personal web page](#)

Martin Fikáček
e-mail: mfikacek@gmail.com
[Martin's lab/personal web page](#)



Offered themes and projects

Copenhagen-based projects

Project 1: Integrating fossils and recent taxa in the study of rove beetle evolution and systematics
(co-advised by F. Ronquist, Swedish Museum of Natural History).

The main objective is to critically examine some described and new key Mesozoic fossils of Staphylinidae, integrate them in the existing phylogenetic datasets, merge the latter as far as possible, and perform the total evidence dated phylogenetic analysis targeting basal relationships within this mega-diverse beetle family.

Project 2: Aleocharinae rove beetles of New Zealand: development of the accelerated workflow to study “dark taxa” in poorly known biodiversity hotspots

(co-advised by R. Leschen, Landcare Research, Auckland and M. Fikáček, Charles University).

The objective is to perform a generic revision and an overview of the extremely poorly known aleocharine fauna of New Zealand. The project also targets development of a more efficient workflow that would involve molecular phylogenetics at the early stages of taxonomic exploration of a very species-rich group in a region with multiple unknown phylogenetic lineages.

Project 3: Genomics-based approaches to the eco-systematic study of insect biodiversity from fragile, endangered ecosystems

(co-advised by N. Wahlberg, Lund University; C. Reid, Australian Museum and G. Cassis, University of New South Wales)

The focus is on building and analyzing molecular phylogenies of several beetle lineages that include interesting members on the small unique Lord Howe Island in the SW Pacific. The aim is to trace the origin of the Lord Howe Island fauna, resolve phylogenetic placement of its several extinct beetle species, and to make a taxonomic inventory of its Staphylinidae fauna.

Prague-based projects:

Project 4: The Life on the Island: leaf-litter insect fauna as a bioindicator of long and short term evolutionary change

(co-advised by A. Solodovnikov, University of Copenhagen, and R. Leschen, Landcare Research, Auckland)

The aim is to examine the evolution, biogeography and conservation of the beetle fauna in New Zealand, with a special focus on leaf-litter species (family Hydrophilidae as the main model group). The project will consist of sampling lineages across New Zealand to produce a comprehensive hypothesis for community assembly at deeper and shallower time intervals. Phylogenetic data will be coupled with niche-modelling to determine geological, glacial and ecological factors responsible for current distributions.

Project 5. Understanding the biodiversity boom in terrestrial hydrophilid beetles

(co-advised by F. Ronquist, Swedish Museum of Natural History, and Andrew Short, University of Kansas)

The aim is to resolve the genus-level systematics and reasons of high species and morphological diversity of the tribe Megasternini, the youngest yet the most diverse group of the family Hydrophilidae. The project focuses on performing the phylogenetic analysis, exploring the impact of geography, habitat and morphological shifts on the diversification rate of this tribe and providing identification tools (molecular and morphology-based) for further studies within the group.



BIG4 at a glance

BIG4 stands for “Biosystematics, Informatics and Genomics of the 4 big insect groups”. It is an international training consortium funded by the European Union-based [Marie Skłodowska-Curie Innovative Training Network Program](#) (EU ITN) that mainly targets PhD education. BIG4 unites established researchers from 7 academic institutions with 3 business companies in Europe and 11 other support institutions around the globe. The main idea of BIG4 is to bring together experts with complementary taxonomic and methodological strengths for training a lucky cohort of young systematic entomologists in broad sense. BIG4 targets the biggest insect groups such as Coleoptera, Hymenoptera, Diptera and Lepidoptera. It tackles a long standing problem of amalgamation classical systematics with innovative methods in phylogenetics, bioinformatics, genomics, advanced semantic biodiversity publishing, and Citizen Science into competitive cross-disciplinary profiles. For every BIG4-based PhD student attached to either of the core BIG4 organizations, the consortium opens learning opportunities additional to their respective academic advisor or home lab. These are planned few weeks to few months secondments to other BIG4 partner labs, and a series of thematic workshops held for all BIG4-based PhDs. Non-academic members of BIG4 bring opportunities in science-related business or industry and give students additional skills to succeed there, since not every PhD graduate lands in academia.

BIG4 core consortium members	Their role and specialization in BIG4 training
Alexey Solodovnikov University of Copenhagen, Denmark	BIG4 Coordinator and main advisor for 3 Coleoptera projects (here advertised).
Martin Fikáček Charles University in Prague, Czech Republic	Main advisor for 2 Coleoptera projects (here advertised)
Niklas Wahlberg Lund University, Sweden	Main advisor for 2 projects (1 Lepidoptera, and 1 cross-taxonomic in genomics)
Fredrik Ronquist Swedish Museum of Natural History, Stockholm	Main advisor for 2 projects (1 Hymenoptera, 1 cross-taxonomic in metagenomics)
Rolf Beutel Institute of Systematic Zoology and Evolutionary Biology, Jena, Germany	Main advisor for 1 project (cross-taxonomic, comparative functional morphology)
Ximo Mengual Zoologisches Forschungsmuseum Alexander Koenig, Germany	Main advisor for 1 project (Diptera)
Nesrine Akkari Naturhistorisches Museum Wien, Austria	Main advisor for 1 project (cross-taxonomic on new techniques for study of morphology)
Lubomir Penev Pensoft Publishers company, Bulgaria	Main advisor for 1 project on innovative biodiversity publishing methods
Eduardo Pareja ERA7- Bioinformatics, Spain	Main advisor for 1 project on innovative methods in cloud computing for genomics
Tamas Jantvik Decuria IT company, Sweden	Main advisor for 1 project on mobile apps for Citizen Science in entomology

