



## NOTICE

### BASIC INFORMATION

Position available within the research project entitled: "A computational approach to understanding the structural loading of bird wings: implications for flight evolution and biomimetics", project number PN-III-P4-ID-PCE-2016-0572

**Title\*:** *Msc student on Biology or Geology*

**Offer Description\*:** The role of this job is within the context of the BIRDWING project; the overarching theme of this 30 month research project is to reconstruct the shape of the wings of birds in two- and three-dimensions and to understand the evolution of wings and feathers.

This MSc student project is focussed on the fossil record of avian feathers and wing shapes. The aim of this aspect of the project will be collect and collate relevant data from the known fossil record of feathers and birds in order to present an analysis and/or review of our knowledge of feather and wing shape evolution/basal conditions. This will be accomplished via museum collection visits and use of the relevant literature and images. The goals of this aspect of the research project are to: (1) collect data from the fossil record relating to preserved feathers and wing shapes; (2) analyze these data in a deep-time phylogenetic context. The **MSc student** will also be responsible for presenting project outputs at conferences and assisting with writing papers and reports.

### Researcher Profiles \*:

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> First Stage Researcher (R1) | <input type="checkbox"/> Recognised Researcher (R2) |
| <input type="checkbox"/> Established Researcher (R3)            | <input type="checkbox"/> Leading Researcher (R4)    |

Research field \*:

Type of Contract\*:

Job Status \*:

Hours Per Week\*: 40/week

Application Deadline \*: 30.01.2019



Envisaged Job Starting Date: 07.02.2019

Is the job funded through a EU Research Framework Programme? \*

Not funded by an EU programme

Is the Job related to staff position within a [Research Infrastructure](#)? (se bifează opţiunea)

How to Apply \*:

email

Contact person\*: Dr. Gareth J. Dyke

E-mail adress\*: garethdyke@gmail.com

Internal Application form needed (.pdf files)

#### HIRING INFO & WORK LOCATION

Number of positions available\*: 1

Company/Institute\*: Faculty of Biology and Geology, Babeş-Bolyai University, Cluj-Napoca, Cluj

Department\*: Geology

#### REQUIREMENTS

##### Required Education Level

Main Research Field\*:

Biological sciences

Level\*:

Bachelor Degree or equivalent

Main Research Field\*:

Geosciences

Level\*:

Bachelor Degree or equivalent

Skills/Qualifications: Paleobiogeology, Evolutionar Biology, Biomechanics

Specific Requirements: A BSc diploma in Biology or Geology, MSc student in Biology or Geology



### Required Languages

Language \*

Level\*

Language \*

Level\*

### Required Research Experience

Research Field \*

Years of Research Experience \*

Research Field \*

Years of Research Experience \*

### ADDITIONAL INFO

Email for additional job details: [garethdyke@gmail.com](mailto:garethdyke@gmail.com)

#### Selection process:

Analysis of CV and additional documents proving the required skills and experience. The selected candidates will be invited for interview.

#### Additional comments:

##### Literature for interview:

- Biewener, A. & Dial, K. 1995. In vivo strain in the humerus of pigeons (*Columba livia*) during flight. *Journal of Morphology* 225, 61–75.
- Bruderer, B., Peter, D., Boldt, A., & Liechti, F. (2010). Wing-beat characteristics of birds recorded with tracking radar and cine camera. *Ibis*, 152, 272-291.
- Chiappe, L. & Dyke, G. (2002). The Mesozoic radiation of birds. *Annual Review of Ecology and Systematics*, 33, 91-124.



- Laurent, C., Palmer, C., Boardman, R.P., Dyke, G. & Cook, R. (2014). Nanomechanical properties of bird feather rachises: exploring naturally occurring fibre reinforced laminar composites. *Journal of The Royal Society Interface*, 11, 20140961.
- Lazos, B. & Visser, K. 2006. Aerodynamic comparison of hyper-elliptic cambered span (HECS) wings with conventional configurations. 24th Applied Aerodynamics Conference 5 - 8 June 2006, San Francisco, California
- Newton, I. (2008). *The Ecology of Bird Migration*. Academic Press, London, UK.
- Norberg, U. M. (1990). *Vertebrate Flight: Mechanisms, Physiology, Morphology, Ecology and Evolution*. Berlin, Germany: Springer-Verlag.
- Osváth G., Sándor K., Vincze O., Bărbos L., Marton A., Nudds R.L., & Vágási C.I. (2015). Interspecific variation in the structural properties of flight feathers in birds indicates adaptation to flight requirements and habitat. *Functional Ecology*, 29, 746-757.
- Pap, P. L., Osváth, G., Sándor, K., Vincze, O., Bărbos, L., Marton, A., & Vágási, C.I. (2015). Interspecific variation in the structural properties of flight feathers in birds indicates adaptation to flight requirements and habitat. *Functional Ecology*, 29, 746-757.
- Pennycuik, C. (2008). *Modelling the Flying Bird*. Academic Press.
- Rayner, J. M. V. (1988). Form and function in avian flight. In R. F. Johnston (Ed.), *Current Ornithology*, volume 5, pp 1–66). New York, NY: Plenum Press.
- Rayner, J. M. V. (1990). The mechanics of flight and bird migration performance. In E. Gwinner (Ed.), *Bird Migration. Physiology and Ecophysiology* (pp. 283–299). Heidelberg, Germany: Springer-Verlag.
- Vágási, C.I., Pap, P.L., Vincze, O., Osváth, G., Erritzøe, J., & Møller, A.P. (2015). Morphological adaptations to migration in birds. *Evolutionary Biology*, 43, 48-59.
- Wang, X., Nudds, R.L., Palmer, C., & Dyke, G. (2012). Size scaling and stiffness of avian primary feathers: implications for the flight of Mesozoic birds. *Journal of Evolutionary Biology*, 25, 547-555.