

## GEOPLANET DOCTORAL SCHOOL

### RECRUITMENT TO THE GEOPLANET DOCTORAL SCHOOL

We are looking for 1 candidate for doctoral studies in the GeoPlanet Doctoral School at the Institute of Geological Sciences of the Polish Academy of Sciences

The Institute of Geological Sciences of the Polish Academy of Sciences is a scientific institution representing the mainstream of Polish basic research in the field of Earth geology. Currently, the Institute specializes in geosystem research, with particular emphasis on interactions between the lithosphere, hydrosphere, atmosphere and biosphere in the domain of geological time. The research also covers the objects of cosmic matter whose origin and evolution have significantly influenced and still influences the development of our planet.

The Institute employs about 110 people (including over 50 research workers) and is a member of the most important international geological bodies.

As a member of the GeoPlanet Doctoral School the Institute of Geological Sciences of the Polish Academy of Sciences conducts doctoral studies in geology. The course lasts 4 years, is conducted in English and ends with a doctoral dissertation. During the course the student attends lectures and participates in research under the supervision of a research tutor.

Recruitment to the **GeoPlanet Doctoral School** is carried out in the form of a competition.

A person who has a Master's degree, a Master's degree in engineering or an equivalent degree may apply for the Doctoral School.

The candidate should:

- read carefully the proposed research topic from the attached list and contact the supervisor.

**Recruitment begins on May 21, 2021 and ends on June 16, 2021.**

Documents should be sent in electronic form **in one PDF file**. by e-mail only to the addresses:

[ingpan@twarda.pan.pl](mailto:ingpan@twarda.pan.pl), [ndtyszka@cyfronet.pl](mailto:ndtyszka@cyfronet.pl)

#### REQUIRED DOCUMENTS:

1. **Application** to the doctoral school with the agreement for the processing of personal data for the purposes of the recruitment and the information that the candidate has accepted the Recruitment Regulations for the GeoPlanet Doctoral School. **Application to the DS GeoPlanet - [Annex 1](#)**
2. **A copy of the master's diploma** or a certificate of the completion of the master studies.  
*Note: If the candidate does not have the abovementioned documents, she/he is expected to provide them before the admission to the doctoral school.*
3. **A list of the university marks** obtained during the first and second degree studies or a list of marks obtained during the Master's studies.
4. **A curriculum vitae** completed by the information about the education and employment career.  
**CV form - [Annex 2](#)**
5. **A cover letter** containing a short description of scientific interests, scientific achievements, list of publications, information on involvement in scientific activity (membership in university scientific associations, participation in scientific conferences, internships and trainings, awards and distinctions)

and justification of the decision to undertake education in the Doctoral School. **A cover letter form - Annex 3**

6. **Certificates** or other documents proving the level of English proficiency, if the candidate possesses them.
7. At least one **recommendation letter** from the current academic supervisor or other academic staff about the candidate's current scientific activity.

## **THE RECRUITMENT PROCESS CONSISTS OF TWO STAGES:**

### **Stage 1 - evaluation of the provided documents**

- scientific achievements of the candidate (0-5 points) based on university marks, scientific and pop-science publications, patent applications, awards and distinctions resulting from scientific research or student activity, scholarships;
- candidate's scientific and professional experience (0-5 points) based on participation in conferences, workshops, training and internships, participation in research and commercial projects, involvement in societies and research clubs.

The candidate must obtain 6 points minimum in the first stage, so to be qualified for the second stage.

### **Stage 2 - an interview evaluated by the recruitment committee**

- candidate's knowledge of the discipline represented by the Institute (0-3 points);
- knowledge of the subject within the selected research topic chosen by the candidate (0-3 points);
- motivation and predisposition to the scientific work (0-4 points).

Candidates who obtain in total 10 points at maximum will not be accepted.

The Institute will inform candidates about the results within 14 days from the day of the last interview.

If the number of candidates admitted to the Doctoral School proves smaller than expected by the date of the end of the recruitment, the Institute will announce the supplementary recruitment.

### **Form of submitting documents:**

Applications should be submitted by 16<sup>th</sup> of June 2021 to the principal investigator of the project, Dr hab. Jarosław Tyszka via e-mail: [ndtyszka@cyfronet.pl](mailto:ndtyszka@cyfronet.pl) and to the Scientific Information Office of the Institute via e-mail: [ingpan@twarda.pan.pl](mailto:ingpan@twarda.pan.pl). In the title of the message please indicate "**FORAMS**".

### **For additional information please contact:**

**Dr hab. Edyta Zawisza** – The Coordinator of the GeoPlanet Doctoral School: [ezawisza@twarda.pan.pl](mailto:ezawisza@twarda.pan.pl)

**Dr hab. Jarosław Tyszka** – The principal investigator of the project: [ndtyszka@cyfronet.pl](mailto:ndtyszka@cyfronet.pl)

**Mgr Elżbieta Gogacz** - Scientific Information Office: [e.gogacz@twarda.pan.pl](mailto:e.gogacz@twarda.pan.pl)

## **The list of the PHD subjects:**

**The proposed research topic of the PhD Project: “Structure and composition of foraminiferal organic linings and their significance in functional, taphonomic and evolutionary contexts”**

Foraminifera are commonly applied as essential geological tools for relative time control and interpretation of paleo/environmental conditions. These unicellular, mainly marine organisms leave in the sedimentary rocks two types of fossil records, i.e. mineralized tests (shells) and their organic linings. Although both types of microfossils differ in extraction procedures, they represent the same tests of the same individuals. Consequently, at least in theory, their mineral and organic records should be complementary. This is not the

case, and the mineralized tests often leave extraordinary records, in contrast to highly biased, fragmentary records of acid resistant organic remains. The main objectives of the PhD project are therefore focused on foraminiferal organic linings and include (1) documentation and interpretation of phylogenetic preservation patterns based on a review of the fossil record, as well as (2) identification of primary and secondary factors responsible for variability of the fossil record, based on analyses of organic linings in living foraminifera.

Our innovative approach combines *in fossilio* and *in vivo* methods, crossing a wide range of disciplines. Phylogenetic trends in preservation of foraminiferal organic linings will be established on the broad spectrum of taxa analyzed based on classical dissolution experiments of extant and fossil tests from the Cenozoic, Mesozoic, and Paleozoic supplemented by published records of foraminiferal organic linings.

The results of newly designed dissolution experiments will be documented under the Environmental Scanning Electron Microscope and optical microscopy. Staining experiments will be done on fixed and live foraminifera and analyzed under classical fluorescent and confocal fluorescence microscopes, and confronted with high resolution correlative TEM and SEM. Most experiments will be run in our foraminiferal culture laboratory.

The following specific research questions will be addressed:

- Why foraminifera of certain clades do not leave organic linings in the fossil record?
- Do all foraminifera of all classes truly produce foraminiferal linings?
- Are organic linings compositionally and structurally diverse?
- If so, what is their composition and structure?
- What is their taphonomic potential?
- What is functionality of foraminiferal linings in relation to their phylogenetic origin?

All these questions encourage novel interdisciplinary studies on organic linings as a critical research target explored based on integration of classical experimental methods with innovative application of modern visualization tools. The results of this PhD project should have a crucial impact on understanding of foraminiferal organic linings, testing contradictive functional hypotheses, and interpretation of neglected phylogenetic and taphonomic patterns.

**NCN project title:** Structure and composition of foraminiferal organic linings and their significance in functional, taphonomic and evolutionary contexts (ID: 2020/37/B/ST10/01953)

**Project summary on the NCN website:** <https://www.ncn.gov.pl/sites/default/files/listy-rankingowe/2020-03-16pfoa/streszczenia/477858-en.pdf>

**Funding source:** National Science Centre (NCN), OPUS 19 Programme

**Principal investigator:** Dr hab. Jarosław Tyszka

**Scientific supervisor:** Dr hab. Jarosław Tyszka

**Application deadline:** 16.06.2021

**Start of the scholarship:** 01.10.2021

**Duration of the employment in the NCN project:** 48 months

**Remuneration:** 3 500 PLN gross gross/month during the first 24 months, 4 300 PLN gross gross/month during the next 24 months

**Location:** Institute of Geological Sciences, Polish Academy of Sciences, Research Center in Kraków, Poland

**We offer:**

- Scientific work in one of the top Earth science research centers in Poland;
- Remuneration paid as a scholarship for the duration of the project, the amount is gross-gross 3 500 PLN per month for the first 24 months and gross-gross 4 300 PLN for the next 24 months (48 months total)
- Participation in an interdisciplinary, innovative and international research project;
- Field work under the guidance of experienced researchers;
- Several research visits to collaborating institutions;
- Participation in international conferences and workshops;

- A new laptop computer and lab personal equipment;
- Possibility to obtain a doctoral degree under the supervision of Dr. hab. Jarosław Tyszka;
- Possibility to apply for additional internal and external funding to extend the time of employment and the amount of remuneration.

#### **Requirements / Expectations:**

- MSc degree in geology, oceanology, biogeology, biology, biochemistry, environmental protection or a similar discipline (on the day of the interview at the latest);
- Enthusiasm for laboratory experimental and field work linked to Earth and life sciences;
- Determination and high commitment to pursue scientific career in the future;
- Good organizational skills and multiple task handling;
- Strong analytical and independent thinking skills;
- Ability to teamwork, as well as independent work;
- Education interfacing geology and biology or related disciplines;
- Experience in micropaleontological and palynological methodologies (including foraminifera and other microfossils);
- Experience in experimental methodologies applied to marine cultures based on micro/aquaria and Petri dishes;
- Preferably experience in application of optical microscopy, fluorescence microscopy, SEM, TEM; experience in evaluation of qualitative and quantitative data;
- Computer graphic/editing skills;
- Experience in scientific writing is advantageous;
- Proficiency in both spoken and written English (at least B2+ level) enabling research in foreign labs; reading scientific literature, active scientific discussions, presenting results at international conferences;
- Professional approach to duties: reliability, persistence, open-mindedness, diligence.

#### **Duties / Responsibilities:**

- Participation in the doctoral school organized at the Institute of Geological Sciences of the Polish Academy of Sciences ([geoplanetschool.pl](http://geoplanetschool.pl));
- Fulfilment of the NCN project tasks, which includes most of all field (in Poland, EU and other countries) and laboratory works (e.g., sample handling and preparation for analytical methods, optical and electron microscopy);
- The workplace will be the Institute of Geological Sciences of the Polish Academy of Sciences, Research Center in Kraków, Poland, but the project may also include several trips abroad related to sampling, research and participation in workshops, summer courses, and conferences;
- Marine foraminiferal culture lab monitoring;
- Running experiments and observations on living, subfossil, and fossil foraminifera;
- Collection, integration and interpretation of experimental, palynological and micropaleontological data;
- Preparation and submission of scientific manuscripts and periodic reports;
- Presenting the results at national and international workshops and conferences (oral and posters).

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