



INSTITUTE OF DENDROLOGY

POLISH ACADEMY OF SCIENCES

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Kórnik, 01/10/2026

**Announcement about recruitment to the Poznań Doctoral School
of the Institutes of the Polish Academy of Sciences
at the Institute of Dendrology Polish Academy of Sciences
No. 19/2026/ID/PSD**

I. Position type: doctoral student

II. Number of vacancies: 1

III. Discipline: Forest Science

IV. Application deadline: 31/10/2026

V. Detailed information about recruitment process can be found on the website:

<https://www.idpan.poznan.pl/en-us/recruitment> and [https://psd-
ipan.ichb.pl/index.php/en/home/](https://psd-ipan.ichb.pl/index.php/en/home/)

VI. Research topic: Remote sensing of forest soil biodiversity

VII. Principal Investigator / Research group: Dr. Francesco Latterini

VIII. Project Description:

The project SOLAR (Modelling and mapping Soil biodiversity through LiDAR and active satellite remote sensing) aims to model forest soil microarthropod biodiversity using remote sensing, from both airborne and satellite platforms. Soil biodiversity is a cornerstone of forest ecosystem functioning, yet it remains one of the least monitored components of biodiversity. The main reason for this gap is methodological: conventional assessments of soil biodiversity rely on soil sampling and microscopic identification, which, although precise and reliable, are costly, time-consuming, and impossible to scale across landscapes. As a result, soil biodiversity is still absent from the parameters routinely considered by forest managers in decision-making. The SOLAR project aims to break this bottleneck by exploring the potential of remote sensing to assess and map soil biodiversity, specifically soil microarthropod biodiversity, under closed-canopy forests. We propose a pioneering approach that leverages two advanced sources of remotely sensed information: (i) LiDAR-derived topographic indices, especially the Depth-to-Water index (DTW), which is a proxy for soil hydrology; and (ii) C-band and L band, Synthetic Aperture Radar (SAR) backscatter, which can penetrate the canopy and provides information about soil moisture, structure and litter. These complementary signals will be combined with field measurements of soil microarthropod biodiversity (QBS-ar index), soil moisture, soil organic carbon, and litter amount. The project will pursue four research hypotheses: H1) DTW-derived soil moisture estimation can serve as a proxy for soil biodiversity; H2) L-band SAR backscatter can serve as a proxy for soil biodiversity; H3) SAR backscatter outperforms DTW in identifying areas of high soil biodiversity; and H4) LiDAR and SAR can be used together to develop digital maps of soil biodiversity. These hypotheses will be tested through a multi-country field campaign in Poland, Italy, and New Zealand, covering different forest types and management contexts. Soil sampling will be stratified according to DTW values and L-band backscatter, ensuring that the full range of

soil conditions is represented. Data analysis will combine three complementary approaches. First, linear and generalized linear mixed-effects models will quantify the relationships between soil biodiversity, soil properties, DTW, and SAR. Second, structural equation models will be used to explore the mechanisms underlying these relationships. Third, machine learning will be employed to generate digital maps of soil biodiversity at ~10 m resolution. This combination of approaches will allow us not only to test hypotheses but also to evaluate the transferability of models across countries and forest types. Scientifically, the project will open a new line of research at the interface of soil science, forest ecology, and remote sensing, demonstrating how remote sensing can be harnessed for soil biodiversity monitoring. Furthermore, the project will deliver the first high-resolution digital maps of soil biodiversity in forest stands, which could guide managers in selecting retention patches, identifying conservation areas, or designing carbon farming strategies. In doing so, SOLAR will provide the knowledge base for future applied projects at higher Technology Readiness Levels, ensuring that soil biodiversity becomes a visible and actionable component of sustainable forest management. With its integration of cutting-edge remote sensing, rigorous fieldwork, and advanced statistical modelling, SOLAR is positioned to deliver a transformative advance: bringing soil biodiversity monitoring into the era of digital mapping and remote sensing.

The PhD student's tasks will include:

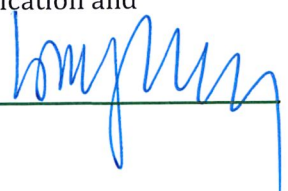
- Support in data collection, data analysis, dissemination activities (scientific publications and conferences)

IX. Additional information:

1. Research and doctoral dissertation will be conducted under research project: SOLAR – Modelling and mapping Soil biodiversity through LiDAR and active satellite remote sensing (2025/59/B/ST10/00816, National Science Centre).
2. The PhD candidate will receive a doctoral scholarship for the entire duration of the doctoral project, i.e. 48 months. The monthly scholarship is approximately PLN 4,270.00 gross (approximately PLN 3,790.00 net). Following a positive mid-term evaluation, the scholarship is increased to approximately PLN 5,500.50 gross (approximately PLN 4,880.00 net) per month.
3. The doctoral student will have the social insurance costs referred to in art. 6 clause 1 point 7b of the Act of October 13, 1998 on the social insurance system (Dz. U. z 2019 r. poz. 300, 303 i 730).

X. Requirements for candidates:

1. Master degree in discipline of forest sciences, biological sciences, Earth and environment sciences or related or meeting the conditions specified in art. 186 section 2 of the Act of July 20, 2018 Law on Higher Education and Science (Dz. U. z 2018 r., poz. 1668 z późn. zm.). It is possible to apply before the defense of the master's thesis (see also point XI.2 below).
2. Very good skills in spoken and written English to allow good communication (at least on B2 level or IELTS), work with literature sources, prepare scientific papers, and present at international conferences.
3. Willingness to travel abroad and to collaborate not only with scientific partners but also with other stakeholders such as foresters, loggers and managers.
4. Specific knowledge and expertise in forest soil microarthropod biodiversity and in the application of remote sensing to forest science will be regarded as an additional qualification and positively evaluated during the selection process.



5. Driving license is recommended but not mandatory.

XI. Required documents:

1. An application for admission to PDS IPAS, including consent for the processing of personal data for the purposes of the recruitment procedure, and a declaration of familiarity with these rules - the current application form is available at <https://www.idpan.poznan.pl/en-us/recruitment>
Applications submitted without the above-mentioned consent will not be considered.
2. A copy of the degree certificate confirming graduation or a certificate of graduation; in the case of degree certificates issued by foreign higher education institutions, the certificate referred to in Article 326(2)(2) or Article 327(2) of the Act, giving the right to seek to obtain a doctoral degree in the country under whose higher education system the issuing institution operates. A candidate who does not have the aforementioned documents (e.g. before the defense of master's thesis) will be obliged to supply them before being admitted to PDS IPAS. Additional information on foreign diplomas is available on the website: <https://nawa.gov.pl/en/recognition/recognition-for-academic-purposes/applying-for-admission-to-doctoral-studies>
3. A curriculum vitae showing previous education and employment, information on involvement in scientific activity (membership of student scientific groups, participation in scientific conferences, completed internships and training courses, prizes and distinctions received) a list of publications.
4. A motivation letter, containing a short description of interests, scientific accomplishments, and reasons for wishing to study at the doctoral school.
5. Certificates or other documents confirming the candidate's knowledge of English, if the candidate has such.
6. Contact details of at least one previous academic supervisor or other academic employee who has agreed to provide an opinion regarding the candidate.

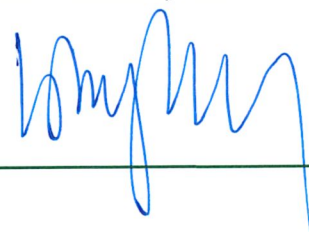
XII. The application should be sent by e-mail to the address psd.idpan@man.poznan.pl with the subject "**Competition for the position of doctoral student No. 19/2026/ID/PSD**" in the form of an pdf attachment. If sending by electronic means is not possible, applications sent to the address Institute of Dendrology, Polish Academy of Sciences, Parkowa 5, 62-035 Kórnik, Poland with the note on the envelope "**Competition for the position of doctoral student No. 19/2026/ID/PSD**" are also accepted. Please do not send original documents.

XIII. Application deadline: 31/10/2026

The incomplete applications or those filed after the application deadline will not be considered.

XIV. Criteria for assessing candidates:

1. The candidate's academic accomplishments, based on grades attained during studies, scientific and popular science publications, scholarships, awards and distinctions resulting from research or student activity, and other achievements.
2. The candidate's academic and professional experience, based on participation in conferences, workshops, training courses and internships, participation in research and commercial projects, involvement in scientific groups and associations, international and professional mobility, and experience in other fields.
3. Candidate's knowledge in the forest science discipline.
4. Knowledge of the topics listed in the recruitment notice.



XV. Competition results: until 20/11/2026

XVI. A description of the recruitment process can be found in the Recruitment Regulations for PDS IPAS. After the recruitment is completed, unaccepted candidates will be informed of the scores obtained at each stage of the competition.

XVII. Admission to PDS IPAS is refused by administrative procedure. The decision may be appealed with to the Director of the Institute of Dendrology of the Polish Academy of Sciences.

**XVIII. Additional information may be provided Principal Investigator / Research group:
Dr. Francesco Latterini, latterini@man.poznan.pl, tel. 61 8170 033**


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