



**Institution:** Faculty of Chemistry, Nicolaus Copernicus University, Toruń, Poland

**Position in the project:** PhD student

**Requirements:**

- Master degree in chemistry, physics or materials science (Candidates receiving a diploma shortly after the closing date will also be considered).
- Experience in laboratory works – organic and inorganic synthesis,
- Independence in conducting laboratory work,
- Knowledge of solid state research methods,
- English - advanced level,
- Knowledge of German would be an advantage
- Commitment to research and scientific work, ability to work in a team, diligence

**Project description and key responsibilities:**

The project "Beyond Li-ion Batteries: Novel, Efficient Electrode Materials for Sodium-Ion Storage" focuses on the synthesis and thorough physicochemical, structural and electrochemical characteristics of composite electrode materials for sodium ion cells.

The project will be performed in cooperation with Gdańsk University of Technology (GUT) and Darmstadt University of Technology (TUD) in Germany.

Tasks to be performed at Nicolaus Copernicus University:

- 1) Structural studies with instrumental methods (SEM, TEM, EDX, PXRD, Raman, Ir, SS-NMR, TG-DTA-DSC, CHN) and study of structural changes under the influence of electrochemical interaction with in-situ techniques (Raman and Ir spectroelectrochemistry in combination with polarization techniques, i.e. cyclic voltammetry, chronopotentiometry, chronoamperometry).
- 2) Physico-chemical and electrochemical characteristics of new composite cathode and anode materials.
- 3) Study of ion transport in composite electrodes (active material / binding material / conductive additive) and single particles of active material (without additives), both cathodic and anode.
- 4) Tests of electrode materials - cathode and anode - in a full cell conducted in cooperation with PG and TUD.

**NCN programme:** BEETHOVEN CLASSIC 3

**Application deadline:** February 2, 2021, 20:00

**Form of submitting offers:** email

**The conditions of employment:**

- a scholarship of PLN 2,000 per month for a PhD student, PLN 1000 for a student for a maximum period for 36 months;
- expected start date: February 15, 2020;
- the possibility of obtaining an additional doctoral scholarship based on the regulations of the Doctoral School



**Required documents:**

- motivation letter
- CV
- diploma of master's degree
- opinion of the thesis supervisor
- scientific achievements (stipends, awards, publications, conference presentations)

Please submit the following documents to: [sbiniak@umk.pl](mailto:sbiniak@umk.pl) and [tryki@umk.pl](mailto:tryki@umk.pl)  
Competition results will be announced on February 5, 2020 r.

**Recruitment.**

The scholarship commission based on the "REGULATIONS FOR THE AWARD OF NCN SCIENTIFIC SCHOLARSHIPS IN RESEARCH PROJECTS FINANCED FROM THE FUNDS OF THE NATIONAL SCIENCE CENTER" will evaluate the submitted documents and select a laureate.

The results of the competition will be published on the website of the Faculty of Chemistry of the Nicolaus Copernicus University (<https://www.chem.umk.pl/wiadomosci/>) in the "News" tab.

The scholarship committee reserves the right to invite selected candidates for an interview or to call chosen candidates to provide additional documents.

Please include in your offer:

I consent to the processing of personal data contained in this document for the purpose of the recruitment process in accordance with the Act of May 10, 2018 on the protection of personal data (Journal of Laws of 2018, item 1000) and in accordance with the Regulation of the European Parliament and of the Council (EU) 2016 / 679 of 27 April 2016 on the protection of individuals with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46 / EC (RODO).