

## JOB OFFER in SONATA grant

**Position in the project:** PhD student

**Scientific disciplines:** quantum optics, plasmonics, solid state physics

**Job type:** stipend

**Number of job offers:** 1

**Stipend amount:** 3000 PLN/month

**Maximum period of stipend agreement:** 7 months

**Position starts earliest on:** 1.03.2022.

**Institution:**

Nicolaus Copernicus University in Toruń, Poland  
Faculty of Physics, Astronomy and Informatics  
Institute of Physics

**Project leader:** dr. Karolina Słowik (Poland)

**Project title:** DAEMoN: Dynamics of Asymmetric quantum Emitters Manipulated with Nanostructures

**Project description:** The DAEMoN project aims to exploit photonic nanostructures for novel ways of controlling dynamics of asymmetric quantum emitters, such as selected molecules or quantum dots. Under certain conditions the optical properties of quantum emitters may depend on their degree of asymmetry. This corresponds to a new channel for light-matter interactions, related in particular to a permanent dipole moment of the system. In free space this channel is weak. In DAEMoN, we propose to use photonic nanostructures for its substantial enhancement to a regime where effects related to this channel could be detected and become practical.

**Key responsibilities include:**

1. Numerical simulations of optical properties of photonic nanostructures
2. active collaboration with partners,
3. preparation of scientific articles,
4. presentation of research results at seminars and conferences.

**Profile of candidates / requirements:**

1. PhD student status (major: physics or related)
2. documented scientific expertise in one of the following disciplines
  - classical electrodynamics,
  - atomic / molecular physics,
  - solid state theory.



3. experience in numerical simulations, preferably experience modelling the optical response of plasmonic nanostructures,
4. strong oral and written communication skills in English.

Required documents:

1. CV,
2. motivation letter (optional),
3. contact details to at least one academic referee,
4. confirmation of the PhD student status (not required for students affiliated at the Nicolaus Copernicus University in Toruń).

Please submit the documents to: [karolina@fizyka.umk.pl](mailto:karolina@fizyka.umk.pl)

(scanned or pdf versions will be accepted).

For more details please contact us by email: [karolina@fizyka.umk.pl](mailto:karolina@fizyka.umk.pl)

Application deadline: 31.01.2022.

Please include the following sentence in your application: "I hereby give consent for my personal data included in my application to be processed for the purposes of the recruitment process under the Personal Data Protection Act as of 29 August 1997, consolidated text: Journal of Laws 2016, item 922 as amended."