

The HUN-REN Wigner Research Centre for Physics  
invites applicants for the position  
**PhD student in the Design of Optically Active Hierarchical Nanomaterials**

The [HUN-REN Wigner Research Centre for Physics](#) (Wigner RCP) invites applications for a fully funded PhD position for the project supported by the National Research Excellence Programme Starting Grant “Optically active hierarchical nanostructures based on boron nitride nanotubes”.

**The project:**

Technological development increasingly relies on nanoscale building blocks for electronics, photonics and quantum computing, therefore precise bottom-up material design is in the forefront of materials science. Nanotubes with hollow cavities in the nanometer and length in the micrometer scale offer ideal templates to serve as nanosized laboratories, where new crystal structures, molecular assemblies can be created. Careful material design can realize robust building blocks for hierarchical nano-assemblies with endless functional potential. Our project focuses on synthesis of these novel materials, and on development of experimental setups to fully explore their properties.

**The PhD position:**

The successful candidate will

- Join the research team of the [Laboratory for Advanced Structural Studies](#) at the HUN-REN Wigner RCP. [Our group](#) fosters a collegial atmosphere with direct access to senior researchers and a high degree of individual responsibility.
- Develop novel one-dimensional nanomaterials with optical functionalities inside various nanotubes.
- Participate in the design and synthesis of new hierarchical nano-assemblies.
- Use various optical spectroscopy techniques and transmission electron microscopy to study the properties of these novel systems both in the macro- and nanoscale.
- Participate in instrument development.
- Be enrolled in a doctoral program at one of our partner universities, providing access to a range of courses, with tuition fees covered by the project.
- Have opportunities for international collaboration, conference participation, and research visits.

**Employment type:**

- fixed-term, 4 years (with 3 month probation)
- full time (40 h/week, 12 month/year)
- funded by the National Research and Innovation office Starting Grant 153235

**Employment location:**

HUN-REN Wigner RCP Institute for Solid State Physics and Optics  
29-33 Konkoly-Thege Miklós Rd. 1121 Budapest, Hungary

**Core responsibilities:**

- Conduct high-quality research, under limited supervision and in collaboration with other team members.
- Maintain active PhD student status at one of our partner universities and comply with all requirements of the respective doctoral school.
- Prepare or contribute to the preparation of refereed journal publications, conference and seminar papers arising from the research.

- Active involvement in professional activities including attendance at conferences, and seminars.
- Attend and actively participate in meetings associated with the research project, and undertake research with the various collaborators.
- Undertake administrative duties associated with relevant research projects, as may be required from time to time.

**Remuneration:**

*700 000 HUF/month starting salary.*

**Selection criteria:**

**Essential:**

- Master's degree (or equivalent) in Physics, Chemistry or a closely related field
- Fluency in spoken and written English
- Demonstrated motivation for creative experimental work, with an interest in instrument design and strong problem-solving skills
- Ability to work both independently and as part of an interdisciplinary team

**Desired:**

- Previous experience in optical spectroscopy, optical design and scanning near-field optical microscopy is an advantage but not required.

**Start date of the position:**

The expected start date is 1 September 2026.

**Application Process:**

**Applicants should submit the following documents:**

- Curriculum Vitae
- Motivation letter outlining research interests and suitability for the project
- Copy of Master's degree certificate (or proof of expected completion), along with academic transcripts
- Brief summary of the Master's thesis
- Contact details of at least two referees

**Application deadline:** 15 May 2026

*For further information about the position, please contact [Bea Botka](mailto:botka.bea@wigner.hun-ren.hu) at [botka.bea@wigner.hun-ren.hu](mailto:botka.bea@wigner.hun-ren.hu)*

**Application submission:** in email to [allas@wigner.hun-ren.hu](mailto:allas@wigner.hun-ren.hu).

**Evaluation of applications:** Initial screening of applications will be followed by online or personal interviews.

**Decision expected by:** 20 May 2026