UNIVERSITY OF BELGRADE
INSTITUTE OF PHYSICS | BELGRADE
NATIONAL INSTITUTE OF THE REPUBLIC OF SERBIA
Pregrevica 118, 11080 Zemun - Belgrade, Serbia
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Poziv za master studenta - Pridruži se našem timu

Laboratorija za kvantnu biofotoniku (Centra za fotoniku), Instituta za fiziku u Beogradu proširuje istraživački tim i poziva motivisane studente master studija da se uključe u međunarodni projekat QUANTEX, uz stipendiju i mogućnost izrade master rada.

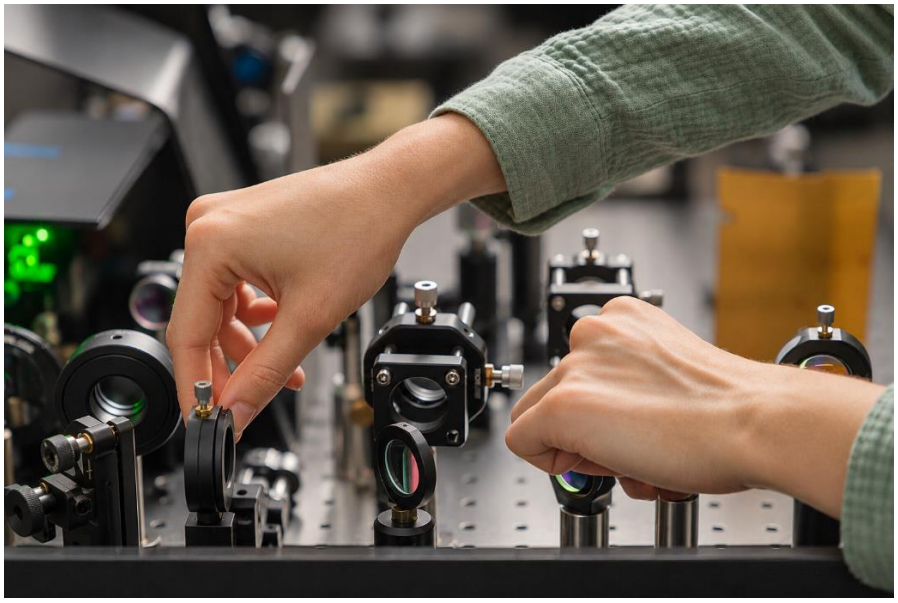
Kako možemo da ispitamo materijal infracrvenom svetlošću, a da informacije o njemu pročitamo detekcijom vidljive svetlosti? Na ovom principu zasniva se istraživanje kojim će se baviti novi član našeg tima.

Projekat **QUANTEX - Quantum Mid-IR Sensing via Undetected Light for the Next Generation Explosive Detection**, podržan kroz NATO program Science for Peace and Security, realizuje se u saradnji sa Tehničkim univerzitetom u Darmštatu. Cilj je razvoj kvantnog spektroskopskog sistema za prepoznavanje tragova eksplozivnih materijala, sa potencijalnom primenom u zaštiti ljudi, kritične infrastrukture i humanitarnom razminiranju.

Šta ćeš raditi?

Uz podršku mentora i istraživačkog tima, učestvovaćeš u odabranim aktivnostima:

- postavljanju i karakterizaciji optičkih eksperimenata;
- radu sa laserima, nelinearnim kristalima i optičkim detektorima;
- automatizaciji merenja i prikupljanju podataka;
- obradi i analizi eksperimentalnih rezultata, na primer u Pythonu;
- ispitivanju stabilnosti, šuma i kvaliteta spektroskopskih merenja:
- upoznavanju sa metodama mašinskog učenja i multivarijantne analize podataka, njihovoj primeni u obradi spektara.



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Tema i obim rada biće prilagođeni tvom predznanju, interesovanjima i obavezama na studijama. Mogući pravci master rada uključuju karakterizaciju izvora fotonskih parova, analizu interferencionih signala ili razvoj softvera za upravljanje eksperimentom i obradu podataka.

Koga tražimo?

Poziv je namenjen studentima master studija fizike, elektrotehnike, fizičke hemije i srodnih oblasti koje zanimaju optika, fotonika, kvantne tehnologije ili eksperimentalna istraživanja.

Očekujemo motivaciju za učenje, odgovornost, spremnost za timski rad i poznavanje engleskog jezika. Iskustvo u programiranju, obradi

podataka ili laboratorijskom radu predstavlja prednost, ali prethodno iskustvo u kvantnoj optici nije neophodno.

Šta nudimo?

- Mesečnu stipendiju tokom perioda angažmana na projektu.
- Mentorsku podršku i postepenu obuku za rad u laboratoriji.
- Mogućnost izrade master rada u dogovoru sa matičnim fakultetom.
- Praktično iskustvo u kvantnoj optici, spektroskopiji i naučnom programiranju.
- Saradnju sa međunarodnim istraživačkim timom.
- Mogućnost učešća u publikacijama, konferencijama i projektnim obukama, u skladu sa doprinosom i projektnim aktivnostima.

Rad će se odvijati na Institutu za fiziku u Beogradu, Pregrevica 118, Zemun. Očekivani angažman je 20 sati nedeljno, uz usklađivanje sa obavezama na studijama. Planirani početak je februar 2027. godine.

Kako se prijaviti?

Pošalji kratku biografiju, pregled položenih ispita i kratko motivaciono pismo, do jedne strane, na **marijac@ipb.ac.rs**, sa naslovom:

„QUANTEX - prijava za master stipendiju“

U motivacionom pismu navedi šta te privlači u ovom istraživanju i da li te više zanima eksperimentalni rad, programiranje ili analiza podataka.

Rok za prijavu: 15. decembar 2026.

Za dodatne informacije možeš se obratiti dr Mariji Ćurčić na istu adresu.

Ako želiš da tokom master studija stekneš istraživačko iskustvo i doprineseš razvoju nove kvantne tehnologije, pozivamo te da nam se javiš.

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Master's Student Opportunity - Join Our Team

The Laboratory for Quantum Biophotonics, part of the Photonics Centre at the Institute of Physics Belgrade, is expanding its research team and invites motivated master's students to join the international QUANTEX project, with a stipend and the opportunity to carry out their master's thesis research.

How can we probe a material with infrared light and retrieve information about it by detecting visible light? This principle lies at the heart of the research you will contribute to as a new member of our team.

The project **QUANTEX - Quantum Mid-IR Sensing via Undetected Light for the Next Generation Explosive Detection**, supported by the NATO Science for Peace and Security Programme, is carried out in collaboration with the Technical University of Darmstadt. Its aim is to develop a quantum spectroscopic system for identifying trace explosive materials, with potential applications in protecting people and critical infrastructure, as well as humanitarian demining.

What will you do?

With guidance from your mentor and the research team, you will contribute to selected activities, including:

- Setting up and characterising optical experiments.
- Working with lasers, nonlinear crystals and optical detectors.
- Automating measurements and data acquisition.
- Processing and analysing experimental results, for example using Python.
- Assessing the stability, noise and quality of spectroscopic measurements.
- Learning about machine learning and multivariate data analysis methods and applying them to spectral data.

The topic and scope of your work will be tailored to your background, interests and academic commitments. Possible master's thesis topics include characterising photon-pair sources, analysing interference signals, or developing software for experimental control and data processing.

Who are we looking for?

This opportunity is open to master's students in physics, electrical engineering, physical chemistry and related fields who are interested in optics, photonics, quantum technologies or experimental research.

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We are looking for motivation to learn, a responsible approach to work, a willingness to collaborate and a working knowledge of English. Experience in programming, data analysis or laboratory work is an advantage, but prior experience in quantum optics is not required.

What do we offer?

- A monthly stipend throughout your involvement in the project.
- Mentoring and step-by-step training in laboratory work.
- The opportunity to carry out your master's thesis research in agreement with your home faculty.
- Hands-on experience in quantum optics, spectroscopy and scientific programming.
- Collaboration with an international research team.
- Opportunities to contribute to scientific publications and participate in conferences and project training activities, depending on your contribution and the project's activities.

You will be based at the Institute of Physics Belgrade, Pregrevica 118, Zemun. The expected commitment is **20 hours per week**, with scheduling arranged to accommodate your academic obligations. The planned start date is **February 2027**.

How to apply

Please send a short CV, an academic transcript listing completed courses and grades, and a brief motivation letter of up to one page to **marijac@ipb.ac.rs**, with the subject line:

"QUANTEX - Master's Stipend Application"

In your motivation letter, tell us what interests you about this research and whether you are particularly drawn to experimental work, programming or data analysis.

Application deadline: 15 December 2026.

For further information, please contact Dr Marija Ćurčić at the same email address.

If you would like to gain research experience during your master's studies and contribute to the development of a new quantum technology, we would love to hear from you.