



UNIVERSITY
OF WARSAW

Faculty of Chemistry



Scientific discipline: photonics, nanostructures, material science, chemistry

Researcher profile: Recognised Researcher (R2, Established Researcher (R3), Leading Researcher (R4)

Type of contract: Temporary

Number of positions: 1

Job status: Full-time

Hours per week: 40

Remuneration/stipend amount/month: ~6500 PLN/month of full remuneration cost;
expected net salary at ~5000 PLN/month)

Position starts on: April 15th, 2019

Maximum period of contract/stipend agreement: 23 months

Institution: Laboratory of Materials Technology, Faculty of Chemistry, University of Warsaw

Project leader: dr hab. Dorota Pawlak, prof. UW

Project title: Novel photonic materials concepts, crystal growth, and beyond-the-state-of-the-art optical characterization at the crossroad

Project description: Within the TEAM programme we will combine (i) crystal growth methods with (ii) novel photonic materials concepts, and with (iii) beyond-the-state-of-the-art optical and physicochemical characterization techniques at the micron/nanoscale available at the Centre of New Technologies, University of Warsaw. At the crossroads of these fields we will work on the development of: (i) new technologies for manufacturing of novel materials with special electromagnetic properties as metamaterials/plasmonic materials (new eutectic-based materials, new matrix-nanoparticles composites, materials with plasmon-exciton interaction, active microresonators with plasmon enhanced luminescence); (ii) understanding of underlying optical/physical processes responsible for the new observed electromagnetic phenomena; and (iii) utilization of the developed materials for various applications (photonics, optoelectronics, photovoltaics, and medicine).

Key responsibilities include:

1. Optical measurements (*s*-SNOM, confocal microscope and others);
2. Modelling of the electromagnetic properties of materials;
3. Preparation of materials;
4. Providing own ideas, studying literature in the subject;
5. Writing scientific manuscripts;
6. Helping PhD students with their work.

Profile of candidates/requirements:

1. PhD in Physics, Materials Science, Chemistry and related fields;
2. Excellent command of the English language;
3. High average marks achieved during MSc and PhD studies;
4. Interest in the subject;
5. Engagement in work;
6. Effective team working skills;
7. Experience in some of the following fields will be welcomed: solid state physics, solid state chemistry, optics, photonics, materials science, photovoltaics, metamaterials/plasmonics, nanomaterials, methods of materials characterization, electromagnetism, scanning near-field optical microscopy, crystal growth, modelling of optical/electromagnetic properties of materials, quantum dots, nanoplasmonic materials.





UNIVERSITY
OF WARSAW

Faculty of Chemistry



Required documents:

1. Cover letter
2. Curriculum Vitae
3. Scanned copy of University diploma including marks
4. Record of achievements (papers, presentations, etc.)
5. Reference letter
6. Consent clause (can be found [here](#))*

Incomplete applications will not be considered. However, it is possible to supplement the application before the submission deadline (preferably by sending a full set of documents).

* consent should be provided as a scanned copy of signed document (original version may be requested later) back-up link: <http://ensemble3.eu/consent-clause-gdpr/>

Selection process

1. Preselection based on online applications and recommendation letters;
2. Interviews with shortlisted candidates;
3. Final decision of the selection committee. The decision will be sent via e-mail to the interviewed candidates by March 10th, 2019.

This contest is the first step of academic teacher employment procedure in accordance with the Statute of the University of Warsaw. Positive result of the contest will be the basis of further proceedings.

We offer:

- Work in team of energetic scientists;
- Access to modern labs and participation in novel research programme;
- Access to new world class characterization equipment: scattering-type Scanning Near-field Microscope (s-SNOM) for nanospectroscopy and nanoimaging in near-field, Time-resolved Confocal Fluorescence Microscope for photoluminescence life-time measurements, Raman microscope for identification of Raman scattering/fluorescence at microscale with TERS/TEFS modules, WGM/SPR spectrometer for exciting of surface plasmon resonances;
- Possibility to cooperate with world class researchers [1, 2, 3].

Please submit the following documents to: dorota.anna.pawlak@gmail.com

E-mail with application should be entitled "TEAM post-doc recruitment"

Application deadline: March 1st, 2019

For more details about the position please see our previous works [4, 5, 6, 7], a movie demonstrating volumetric our nanoplasmonic material [8], and our facebook site [9]

[1] P. Alonso-González, ..., R. Hillenbrand, *Science* 2014, 344, 1369.

[2] A. Woessner, ..., R. Hillenbrand, *Nature Mater.* 2015, 14, 4.

[3] V. K. Valev, J. J. Baumberg, C. Sibia, T. Verbiest, *Adv. Mater.* 2013, 25.

[4] M. Gajc et al., NanoParticle Direct Doping: Novel method for manufacturing three-dimensional bulk plasmonic nanocomposites, *Adv. Funct. Mat.* 2013, 23, 3443.

[5] K. Sadecka et al., When Eutectics Meet Plasmonics: Nanoplasmonic, Volumetric, Self-Organized, Silver-Based Eutectic, *Adv. Opt. Mat.* 2015, 3, 381.

[6] K. Korzeb, Compendium of natural hyperbolic materials, *Opt. Express* 2015, 23, 25406.

[7] D. A. Pawlak, How far are we from making metamaterials by self-organization? The microstructure of highly anisotropic particles with an SRR-like geometry, *Adv. Funct. Mat.* 2010, 20, 1116.

[8] <https://www.facebook.com/fmlaboratory/videos/608375495898423/>

[9] <https://www.facebook.com/fmlaboratory/>