FORM FOR EMPLOYERS

INSTITUTION: Department of Molecular Physics, Faculty of Chemistry, Lodz University of Technology

CITY: Lodz

POSITION: PhD student (2)

DISCIPLINE: Chemistry, Material Science, Solid State Physics

POSTED: 25.08.2017

EXPIRES: 17.09.2017

WEBSITE: www.kfm.p.lodz.pl

KEY WORDS: Organic semiconductor; Self-standing organic transistor; Complementary inverter; Flexible electronic; Graphene inks,

DESCRIPTION (field, expectations, comments):

Project description:

This First Team is aiming to develop high performance and flexible complementary inverters based on ultrathin free-standing films that involve a spontaneous phase separation between the polymer dielectric and the organic semiconductor. This approach is considered to reduce the number of production steps of flexible organic/inorganic based transistors. Additionally, thanks to our idea the charge trapping at dielectric/isolator interface will be reduced to minimum. The combination of the self-standing dielectric/semiconductor bilayers composites with printed conductive graphene electrodes will allow to fabricate high performance and flexible complementary inverter and finally logic gates in a new approach opening the door towards low cost processing.

Key responsibilities include:

1. Fabrication of bilayer dielectric / semiconductor systems for transistor application

2. Characterization of fabricated active layers by: atomic force microscopy, X-ray techniques, field effect studies

3. Writing reports and publications

Profile of candidates/requirements:

Essential:

1. Master degree in chemistry, physics, material science or related fields;
2. Status of a PhD student or willing to start the PhD studies at Faculty of Chemistry Lodz University of Technology;
3. Experience and interest in semiconductor physics;
4. Good English language skills (written and oral) as required for scientific environment

Desirable skills:

5. Experience in:
    - manufacture of organic semiconductors thin films;

- atomic force microscopy and/or optical spectroscopy and/or X-ray analysis
- electrical measurements of organic semiconductors

6. Experience in working in a team;

We offer:

1. Excellent opportunity to extend and enrich personal scientific career track and acquiring new skills;
2. Appointment starting 1st October 2017, funding guaranteed for 3 year;
3. Opportunity of internships at the Max Planck Institute for Polymer Research in Mainz (Germany) and at the Center for Advancing Electronics Dresden at the Technische Universität Dresden (Germany);
4. Participation in scientific conferences and meetings;
5. Results obtained during working on this project will be expected to become basis of PhD thesis;
6. Fellowship 3,500 PLN/month, there is possibility to receive additional PhD scholarship from Chemistry Faculty, Lodz University of Technology (1,500 PLN/month);

Required documents:

1. Curriculum vitae (in English) documenting achievements, scientific degree, publication, technical skills, research stays and other relevant;

2. Motivation letter (in English) documenting motivation and the most important scientific achievement of the candidate;
3. Details of at least one individuals willing to provide references for candidate;
4. MSc certificate;

The application must contain the following statement: "*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".*

Documents should be submitted to the leader of the Project, Dr. Tomasz Marszalek

The e-mail address: tomasz.marszalek@p.lodz.pl.

We inform that only selected candidates will be invited for an interview.