Prof. Włodzimierz Kutner, Ph.D., D.Sc., (Group of Molecular Films Research http://ichf.edu.pl/res/res_pl/Z02_EN.pdf) seeks a candidate for the following position

**Post-doctoral Research Fellow**

with salary in the total amount of ~8700 PLN (before tax) with social and health benefits
to do research within the NCN Opus 8 Project No. 2014/15/B/NZ/01011 (2015 –2018), entitled:

**Selective recognition of toxic heteroaromatic amines and N-nitrosamines in protein providing food products**

High temperature frying, broiling, or grilling protein providing food products, such as meat, fish, poultry, and eggs, generates in these products toxic heteroaromatic amines and N-nitrosamines. Continuous exposure to low doses of these toxins causes several chronic diseases, serious hormonal dysfunctions, and cancer. Currently used procedures for determination of these toxins in food matrices are either expensive or tedious and time-consuming. Therefore, fast, inexpensive, simple, and reliable determination procedures, without need of separation of these toxins, in the protein food matrices are in demand. Expectantly, dedicated chemical sensors (chemosensors) will meet this demand. Therefore, the research objective is to devise these chemosensors along with the relevant determination procedures. As recognition units in these chemosensors, the candidate will use conducting polymers molecularly imprinted with the target toxins. Molecularly imprinted polymers (MIPs) are known as “plastic antibodies”. This is because they can mimic recognition properties of biomolecules, such as antibodies and enzymes. However, MIPs are more stable and easier to prepare than their biological counterparts are while revealing comparable selectivity. Selective determination of toxins in the protein providing food products is challenging because of matrix complexity. The post-doctoral research fellow recruited will accomplish a fundamental toxicology research focused on designing, synthesizing, and applying to the toxin chemosensing new artificial recognition MIP materials and will develop dedicated procedures for selective determination of these toxic food contaminants. As platforms for transduction of the recognition signals into analytically useful signals, the successful candidate will use most appropriate electrochemical, spectroscopic, and piezoelectric microgravimetry techniques as well as those involving extended-gate field-effect transistors (EG FETs). Therefore, an organic chemist is sought who will design and prepare new functional and cross-linking monomers capable of both electrochemical polymerization and non-covalent, covalent, and semi-covalent imprinting. Moreover, research responsibility of this chemist will involve molecular modeling of pre-polymerization complexes and molecularly imprinted polymer (MIP) cavities with the medium effects taken into account; generating the IR and Raman spectra of these complexes and polymers; molecular dynamics of MIP formation; artificial neural networking of matrices of individually addressed chemical sensors (e-tongues) with MIP recognition units.

**Requirements**
1. Ph.D. degree in Science (preferably in chemistry, material science, biochemistry, molecular biology or related) awarded not earlier than five years before the deadline of the present recruitment.

2. Experience in organic synthesis, electroanalytical chemistry, IR and Raman spectroscopy, AFM, SEM microscopy imaging, quantum-chemistry modeling, and electronic tongues is most welcome.


Inquires and applications should be sent by e-mail to Prof. Włodzimierz Kutner at wkutner@ichf.edu.pl or to the Science Office of the Institute at Sekn-RN@ichf.edu.pl before 3.00 p.m. of 25th November 2015.

Complete application should include:

1. Employment application.

2. Curriculum vitae.

3. Essay (up to 3500 characters) covering scientific interests, list of scientific achievements emphasizing those three most important, and contributions to research projects.

4. University degree diploma and Ph.D. certificate.

5. List of publications with emphasized five most important papers published during the last 5 years (excluding breaks in scientific career).

6. Number of citations (without self-citations), h-index, and the number of years of research activity (excluding breaks).

7. Information about intermissions in scientific career, e.g., maternity leave, job in industry, etc.

8. List of research projects led by the candidate together with 1-3 most important publications resulting from these projects.

9. At least one letter of recommendation about candidate written by a professor.

10. Letter of motivation with respect to the research indicated above.

As part of the recruitment procedure, the Recruitment Commission may invite candidates to present in public their previous research at a seminar in the Institute of Physical Chemistry PAS, and/or for the interview.