



## Public Lecture Evaluation

**Masaryk University**

**Faculty**

**Procedure field**

**Applicant**

**Lecture date**

**Lecture topic**

**Persons present**

(number)

**Designated evaluators**

(board members)

Faculty of Science

Physical Chemistry

**Dr. Jan Hrbáč, Associate Professor**

15<sup>th</sup> November 2018

“Functional layers for electrochemical sensors and devices”

SD..... (see attached list of attendees)

Libuše Trnková, Prof.

Přemysl Lubal, Prof.

Petr Vanýsek, Prof.

Jiří Ludvík, Prof.

Günter Fafílek, Prof.

The introduction part of the lecture of Dr. Jan Hrbáč was devoted to his scientific activities in a retrospective form. Subsequently, the topic related to functional layers for electrochemical sensors and devices was introduced. The focus was laid on electrocatalytic and selective layers and diverse methods of their fabrication onto disposable electrodes, namely carbon fiber microelectrodes and screen printed sensors. The principles behind individual techniques were outlined. Following the introductory part of the lecture, the applicant has demonstrated the individual techniques of functional layers fabrication developed in his laboratory. These included the presentation of published results describing the development of electro-catalytic and perm-selective layers prepared by drop-dry technique, electro-polymerization, electrochemical and electrophoretic deposition and a novel promising technique of spark discharge. In addition to preparation methods, the characterization and applications of each type of layer were described. The application of the functional layers was mostly in electrochemical sensing, the applicant however mentioned the utility of the layers in optical sensing, where the fabrication of nanostructured metal layers applicable to Surface Enhanced Raman Scattering (SERS) and chiral layers derived from hexahelicene were presented. The applicant also mentioned the possibilities of using some of the studied layers as models of sensitive and selective sensors. In the concluding part of his lecture Dr. Jan Hrbáč summarized his pedagogical activities. The lecture, which lasted 55 minutes, was well designed, carefully prepared and documented by suitable figures and diagrams. The results in both research and pedagogical field were presented at an adequate level.

The lecture was followed by a discussion in which Dr. Jan Hrbáč convincingly demonstrated good orientation in the area and competently answered questions asked by the committee members and the audience.

## Conclusion

The lecture delivered by Jan Hrbáč entitled “*Functional layers for electrochemical sensors and devices*” and delivered as part of the professor appointment procedure, **demonstrated** sufficient scholarly qualifications and pedagogical capabilities expected of applicants participating in a professor appointment procedure in the field of Physical Chemistry.

In Brno on the 15<sup>th</sup> of November 2018

Prof. Libuše Trnková, CSc.

Prof. Přemysl Lubal, Ph.D.

Prof. Petr Vanýsek, CSc.

Prof. Jiří Ludvík, CSc.

Prof. Dr. Günter Fafilek