UNIVERZITA PAVLA JOZEFA ŠAFÁRIKA V KOŠICIACH

Technology and innovation park - UPJS
prof. RNDr. Pavol Miškovský, DrSc.
director
SNP 1, 040 01 Košice
e-mail: pavol.miskovsky@upjs.sk,
www.upjs.sk/pracoviska/tip/

To
Prof. RNDr. Tomáš Obšil, PhD.
Predseda habilitačnej komisie
PF UK
Albertov 6
128 43 Praha 2

Košice, February 6, 2022

Subject: evaluation of habilitation thesis of dr. Radek Šachl

Dr. Šachl submitted a habilitation thesis entitled "Membrane at nanoscale – molecular insight by fluorescence microscopy", in which he analyzes results obtained by two advanced fluorescence methods – MC-FRET (FRET analyzed by Monte Carlo simulations) and FCS (fluorescence correlation spectroscopy) allowing to study a membrane nanostructure organization and related functions on nanoscale with the resolution bellow the diffraction limit (~ 10 nm resolution), which clearly defines his scientific focus. Such spatial (and related time) resolution achieved by optical methods, represents a current technology limit in membrane structure studies as well as related top research achievements in the field. It means, that research focus of dr. Šachl is undoubtedly very actual and represents an internationally recognized scientific topic.

In terms of form of the habilitation thesis, it is a very well-crafted document. I appreciate the brief and well-arranged Introduction/Focus of the thesis, which allows to understand in a short time the subject of the issue to which the presented part relates. The habilitation thesis composition gives also clear evidence of a pedagogical talent of dr. Šachl, which is important for the position of associate professor at university (docent).

The analysis of the achieved results (clear and understandable described in individual paragraphs) presented in the Chapter 5 is based on the author's already published works, attached in the Chapter 9. All works have been published in top-ranking scientific journals (e.g., Scientific Reports, Biophys. J., FEBS Lett.) and thus, have undergone by sever peer-reviewed process, which demonstrates its high quality and originality. In addition, dr. Sachl is either the first or the corresponding author in eight (out of fourteen) works, which certifies his leading position in the scientific team. It was a pleasure for me to be involved (as referee) in an original research approach which combines the author´s deep knowledge in optical spectroscopy/microscopy, physical chemistry/biophysics and numerical simulations, which together created sophisticated experimental and analytical approach. The habilitation thesis, and its publication output, represents a significant and major contribution to the field of fluorescence microscopy and physical chemistry/membrane biophysics.

In addition, as based on analysis of international databases data, his outstanding research is demonstrated by number of publications in high-ranking scientific journals, which are very well cited (No. of publications 47, H index 15).

All these data demonstrate that dr. Šachl has a stable position in international scientific community in the field of physical chemistry and related fields (biophysics, cellular biology etc).

To my opinion (generated from the habilitation thesis as well as from international research databases) dr. Sachl has a strong potential for future progress in research as well as in pedagogical activities. I highly appreciate his professional competence in the field of physical chemistry and related areas. Dr. Šachl has undoubtedly all the qualifications to perform the function of associated professor (docent).

I recommend dr. Šachl for an associate professor position at Charles university with my highest enthusiasm possible.