



Developments for single molecule studies

Submitted by Dalibor Panek

“Oponentský posudek disertační práce”

The thesis starts with a comprehensive and informative summary of the theoretical knowledge on fluorescence spectroscopy as well as Raman spectroscopy, with an emphasis on the fluorescence. This summary is followed by a chapter on the basic principles of fluorescence data collection and analysis. The core of the thesis represents three rather independent parts presenting the experimental results gathered by Dalibor Panek. The first results chapter is focusing on silica sol-gels. Fluorescence experiments using dyes like rhodamine or perylene were performed and the results were related to the biocompatibility of such silica sol-gels. In the next chapter a photophysical study is presented of a D-glucose/D-galactose binding-protein (GBP) labeled with the environmentally sensitive dye badan. While the those two chapters represent applications of fluorescence spectroscopy in specific scientific question, the last experimental chapter has more the character of testing a certain instruments: Here the applicability of a specific scanning near-field optical microscopy for single molecule fluorescence imaging and spectroscopy was tested.

The thesis is well written, there are no major errors and certainly makes original contributions to the field. In my eyes it fulfills the usual standard for PhD works. In summary I recommend the committee to accept this thesis. For the case, Dalibor Panek will successfully defend his thesis, he should be awarded with the title PhD.

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