Supervisor´s commentary

Supervisor: **Mgr. Jan Filip, Ph.D.**

Student: **Mgr. Jana Dzíbelová (born as Havláková)**

Dissertation thesis: **2D Materials for Energy Storage and Photocatalysis: View into Intriguing Properties**

Mgr. Jana Dzíbelová is a PhD student of 7th year of doctoral study program (Applied physics) at Faculty of Science of Palacký University Olomouc. She was originally supervised by Doc. Jiří Tuček, Ph.D. and the topic of her research was on Transformation mechanisms of various nanocrystalline iron(III) oxides (covering mainly thermally induced transformations in various atmospheres). Upon leave of Doc. Jiří Tuček, Ph.D. from Palacký University Olomouc, I accepted to be her supervisor and we modified her scientific focus on 2D (nano)materials, covering typical Van der Waal systems (graphene derivates and MXenes) and currently growing field of non-Van der Waals materials (mainly represented by hematene as a 2D form of hematite). Majority of the research has been performed at University Institute CATRIN of Palacký University Olomouc, where she was partly employed. She was also an active member of several student´s research projects. Beside her own research, she was responsible for thermal analysis and X-ray powder diffraction measurements (both at CATRIN), for routine measurements and for contract research, and she also participated at teaching of specialized courses at Faculty of Sciences (UPOL).

In my opinion, Jana Dzíbelová has carried out research (including 2 oral and 5 poster presentations on international meetings, 5 co-authored papers in high-quality international journals, as well as 3 months long internship abroad) which meets the requirements on PhD students at Faculty of Science of Palacký University Olomouc. She also successfully finished all required courses within doctoral study. The delay of PhD thesis finalization was influenced by combination of change in supervision/topic and COVID pandemic situation. Nevertheless, she has proven that she can perform an independent research and teaching in field of nanotechnology and material science in general.

I recommend the acceptance of the submitted thesis as a crucial part of the procedure for awarding the Ph.D. degree.

Olomouc, November 22, 2023

Mgr. Jan Filip, Ph.D.

Group of Environmental nanotechnologies

RCPTM, CATRIN, Palacký University Olomouc