Brno University of Technology
Central European Institute of Technology

Supervisor´s report

Academic year: **2022/2023**

Student: **Ing. Igor Turčan**

Doctoral programme: **Advanced materials and nanosciences**

Field of study**: Advanced nanotechnologies and microtechnologies**

Supervisor: **Ing. Michal Urbánek, Ph.D.**

Name of doctoral thesis topic: Magnetism in curved geometries

Overall evaluation of doctoral thesis and study of the doctoral student:

Igor Turčan's academic performance was excellent. He was teaching basic physics course (both experimental and theoretical practicals) at the Faculty of Mechanical Engineering for six semesters. Moreover, he supervised two Bachelors' projects and reviewed one Bachelor's thesis. Also, he served to the academic community as a member of CEITEC PhD student committee (2018-2021) and CEITEC Nano user committee (2018-2019). Igor spent his research internship in the group of prof. Manfred Albrecht at the University of Augsburg, where he learned about the growth of low damping magnetic films.

In his thesis Igor describes a novel approach of inducing the effective magnetic anisotropy by exploiting the curvature of the system. The corrugation-induced uniaxial magnetic anisotropy was studied in structures with modulated surfaces prepared by focused electron beam-induced deposition and electron beam lithography. The potential of the development nanofabrication technique is universal and can be used with any commonly used magnetic material. The demonstration of the capabilities of this technique was demonstrated in an experiment with zero-field propagation of spinwave propagation in the Damon-Eshbach geometry probed by Brillouin light scattering microscopy.

In summary, during his PhD study, Igor always performed very well, and the findings of his PhD project are nicely summarized in his thesis. He published one publication in impacted journal as the first author and another two publication as a co-author. Igor has proved his abilities for independent creative scientific work.

In my opinion, the reviewed thesis **fulfill** all requirements posed on theses aimed for obtaining PhD degree. This thesis **is** ready to be defended orally, in front of respective committee.

Place…Brno……date..10.10.2022 ……

Ing. Michal Urbánek, Ph.D.