

Supervisor's report

Academic year: **2024/2025**

Student: **Ing. Michal Horký**

Doctoral programme: **Advanced materials and nanosciences**

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

Supervisor: **Ing. Vojtěch Uhlíř, Ph.D.**

Name of doctoral thesis topic: **Controlling the magnetic phase transition in spatially confined structures**

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

Michal Horký has been a diligent and motivated student throughout his Ph.D. studies, demonstrating a strong commitment to scientific development. His work has contributed significantly to the understanding of phase transitions in FeRh alloys, particularly in spatially confined structures, and has the potential for applications in spintronics and sensor technology.

Michal's research has resulted in one first-author publication, with one more in preparation, along with several co-authored works. His findings provide valuable insights into the magnetic phase transition in FeRh-based systems and its tunability through spatial confinement, epitaxial strain, and external magnetic fields. He has demonstrated proficiency in various experimental techniques, including nanolithography, magnetic force microscopy, and transport measurements, which he has successfully employed to investigate FeRh nanowires.

Michal has consistently shown perseverance, responsibility, and problem-solving skills. Despite his independent research approach, he remained an effective team player, contributing to collaborative projects. His ability to manage multiple tasks and projects simultaneously is commendable, although, at times, this has led to delays in finalizing certain aspects of his Ph.D. work. Nevertheless, he has successfully fulfilled all the major goals of his doctoral thesis.

Over the course of his studies, Michal has significantly improved his scientific writing and presentation skills, both of which are critical for a successful research career. While his presentation and analytical abilities have grown, there is still room for further refinement to reach a high professional standard.

In summary, Michal Horký has demonstrated capabilities for independent scientific research and has made meaningful contributions to his field. In my opinion, the reviewed thesis fulfills all requirements posed on the theses aimed for obtaining PhD degree. This thesis is ready to be defended orally, in front of the respective committee.

Place: Brno, 13.12.2024

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Ing. Vojtěch Uhlíř, Ph.D.