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Praha, 12. 3. 2021

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Univerzita Karlova v Praze  
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Rada doktorského studijního oboru Fyzika nanostruktur a nanomateriálů  
Ke Karlovu 3  
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**Věc:** Posudek školitele  
**Subject:** Supervisor's report

Jméno / Name: Mgr. Zdeněk Kašpar  
Název / Title: Quench switching of antiferromagnetic CuMnAs

Throughout the years Zdeněk Kašpar spent in our group (including his Bachelor's, Master's, and Ph.D. studies) he became an important member of our team. He gained expertise in various experimental techniques including sample micro-fabrication, electrical transport, magneto-transport, or high-frequency measurements. Also, he mastered programming and modelling of complex physical problems in COMSOL Multiphysics software.

In his thesis, Zdeněk focused on a detailed description of experiments characterizing the quench switching effect in antiferromagnetic CuMnAs material. The discovery of this effect is the basis of an important article (published in Nature Electronics), of which Zdeněk is the first author. At least for our group, the detailed description of these experiments contained in the thesis will be a useful source of information in future. Zdeněk not only independently performed the experiments (including sample fabrication and measurements) but he also built the setups used for the experiments and coded the necessary control and analysis programs.

In addition to the research summarized in the thesis (which I believe would be sufficient for a successful Ph.D. study), he significantly contributed to many other experiments and research projects. He co-authored 10 articles published to this date. Besides the work in the laboratories of our department he also performed numerous experiments in other institutions including magneto-optical experiments at Charles University, magneto-transport measurements at HZDR in Dresden, terahertz experiments at Fritz Haber Institute in Berlin, NV-center microscopy experiments at ETH Zurich, or STEM experiments at Oak Ridge National Laboratory. His results were acknowledged by the second place in Milan Odehnal prize for young scientists in 2020.

To conclude, I recommend Zdeněk Kašpar's Thesis for defense and I recommend granting him the doctor degree.



Prague, 12. 3. 2021

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