

Prague 16.5. 2024

Subject: Statement of the PhD mentor of Andres Pinar.

To Whom It May Concern,

Andres Pinar joined the Nanosurf Lab at the begin his doctoral studies at Charles University. In a short time, he was able to master the necessary experimental skills to conduct experiments independently on a sophisticated low-temperature scanning probe microscopy operating under ultra-high vacuum conditions. He also got acquainted with sample preparation, including the deposition of molecules into UHV conditions and on-surface reactions. He was involved in the experimental investigation of electronic and magnetic properties of molecular nanostructures on surfaces as well as 2D materials. Later, he mastered advanced spectroscopic techniques of scanning probe microscopy. Namely, he significantly contributed to developing the SPM technique using nickelocene functionalized probes, enabling the sensing of magnetic states of individual molecules.

Moreover, he also actively participated in developing code for the analysis and processing of experimental data. This technique, together with theoretical simulations, opens up new possibilities for the characterization of magnetic states at the atomic level in the future. Nanosurf Lab will benefit from this method in the future thanks to Andres' fundamental contribution.

During his thesis, he learned to communicate with theoretical fellows and explain his experimental results in an understandable way. He actively participated in the scientific activities of the Nanosurf laboratory at the Institute of Physics. Recently, he also mentored other colleagues and students visiting the laboratory, to whom he transferred his experience with experimental measurements.

He presented the results at several international conferences, where he demonstrated good presentation skills. During his doctoral studies, he demonstrated the ability to independent scientific thinking. These qualities give good preconditions for his future independent scientific career. Thus, I fully recommend the award of a PhD degree.

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