Supervisor's review of the master's thesis
Václav Voráček:
Combinatorial Methods in the Study of Quantum Structures

Václav Voráček is an excellent student with high prospects; in this field, he already published the results of his bachelor thesis in two journal papers. Now he continued as a regular and very helpful researcher in our team. He attacked difficult open mathematical questions, using his mature skills in theory and programming.

1. By finding an orthocomplemented difference lattice without states (probability measures), **he answered a question which remained open in the successful PhD. thesis** M. Matoušek: *Algebraic methods in multi-valued logics (Orthocomplemented lattices with a symmetric difference)*, Faculty of Mathematics and Physics, Charles University, Prague, 2010.

2. Even more, Václav Voráček found a proof of Bell–Kochen–Specker theorem for $\mathbb{Z}_2$-valued states in three dimensions. Thus **he solved an open problem older than himself**, to which top experts found only partial solutions. This result is now accepted in *Foundations of Physics*.

The former result of the thesis is expected to be a topic of another future publication. I was proud to participate in this research, which Václav Voráček enriched by novel ideas.

The master's thesis of Václav Voráček is at an extraordinary level, I recommend to evaluate it by degree

A (excellent)

and I **suggest it for an award**.

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