

PUBLIC LECTURE EVALUATION

Masaryk University

Faculty	Faculty of Informatics
Procedure field	Informatics
Applicant	Stanislav Živný, Doctor of Philosophy
Lecture date	3. 5. 2022
Lecture topic	<i>Power of convex relaxations in discrete optimisation</i>
Persons present (number)	31 (see attached list of attendees)
Designated evaluators (board members)	prof. RNDr. Antonín Kučera, Ph.D. prof. RNDr. Petr Hliněný, Ph.D. prof. Mgr. Michal Koucký, Ph.D. prof. Ing. Tomáš Vojnar, Ph.D.

The talk was divided into four parts. The first part was devoted to introducing various variants of Constraint Satisfaction Problems (CSP) and positioning this line of research in the broader context of Theoretical Computer Science. Some major milestones, such as the Hell-Nešetřil theorem and Feder-Vardi conjecture, were recalled explicitly. In the second part, the power and limitations of the convex relaxation technique were discussed and illustrated on selected problems such as vertex cover. The last two parts were devoted to the existing techniques and results for exact solvability and approximability of CSP.

The lecture gave an excellent overview of recent results in an important and quickly expanding line of research in discrete algorithms. The achieved results are deep and often hard to understand for a non-expert audience. The candidate put a lot of emphasis on building the underlying intuition, presented a well-chosen set of examples illustrating the introduced concepts, and also explained the results informally without resorting to oversimplifications. The overview included original results achieved by the candidate and concluded with a set of challenging problems for future research.


The talk convincingly demonstrated the candidate's ability and skills to explain inherently difficult material to an educated but non-expert audience.

Conclusion

The lecture delivered by Stanislav Živný, entitled „*Power of convex relaxations in discrete optimisation*“ and delivered as part of the professor appointment procedure, **demonstrated – failed to demonstrate** sufficient scholarly qualifications and pedagogical capabilities expected of applicants participating in a professor appointment procedure in the field of Informatics.

Date: 3. 5. 2022

Antonín Kučera



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Petr Hliněný

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Michal Koucký

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Tomáš Vojnar

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