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Professor Jaroslav Nešetřil
Charles University,
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Ke Karlovu 2027/3
12116 Praha 2
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Talence, November 5, 2019

Subject: *Report on the Habilitation thesis of Petr Gregor*

Dear Professor Nešetřil,

The work of Petr Gregor presented here is a collection of 12 publications from year 2012 and 2018 selected from a total of 43 publications since 2000. His domain of research is algorithmic and structural problems in the theory of interconnection networks motivated by communication's problems.

In this manuscript, the presentation of his research is well written and pleasant to read. Petr Gregor shows, by his selection of papers that he presents, that he has a very good taste for considering interesting and nice problems. He collaborated with very prominent researchers of our community. His contribution is remarkable in the following subjects among many others:

Queue layouts,
Level-disjoint partitions,
Incidence colorings,
Distance magic labeling,
Parity vertex coloring,
Gray codes,
Linear extension diameter.

The incidence coloring problem is one I considered in my research work. I would like to emphasize the result of Petr Gregor. An incidence of an undirected graph G is a pair (v,e) where v is a vertex of G and e an edge of G incident with v. Two incidences (v,e) and (w,f) are adjacent if one of the following holds: (i) v = w, (ii) e = f or (iii) vw = e or f. An incidence coloring of G then assigns a color to each incidence of G in such a way

that adjacent incidences get distinct colors. The smallest number of colors required for such a coloring is called the incidence chromatic number. In 1993, Brualdi and Massey conjectured that the incidence chromatic number of every graph G is less or equal to $\Delta(G) + 2$. This was disproved by Guiduli in 1997. However, this inequality seems to hold for many graph classes. This inequality is proved for subcubic graphs. Petr Gregor with P. Lužar and R. Soták proved that every graph with maximum degree 4 has incidence chromatic number at most 7. This work is a very interesting approach to prove 6.

All the results of Petr Gregor are important and published in very high level international journals (among them: SIAM J. Discrete Applied Math., DMGT, J. Combin. Optim. Theor. Comp. Sci., European J. Combin.) They prove that he is a promising researcher.

I am deeply convinced that Petr Gregor deserves to obtain the Habilitation and it is clear that **he should be appointed as an associate professor in your university**.

Best regards,
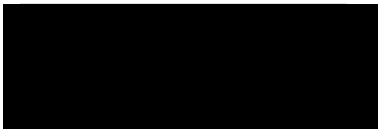
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