

# Report on the habilitation thesis of Petr Honzík

This habilitation thesis contains a systematic study of singular integral operators with rough kernels. The main achievements of Dr. Honzík include (but not only)

- Providing examples to show that the boundedness of  $T_\Omega$  is  $p$  dependent;
- The weak type  $(1, 1)$  estimate of the Christ-Journé commutator in dimension two;
- A restricted weak type endpoint estimate for the maximal rough singular integrals;
- Boundedness of bilinear rough singular integrals.

I would say that Dr. Honzík's work contains a lot of novelty, and has received a lot of attention by many mathematicians working on the subject of rough singular integrals. For example, Dr. Honzík first provided the weak type  $(1, 1)$  estimate of the Christ-Journé commutator in dimension two, then Andreas Seeger (Fellow of AMS) continued this research line to extend it to all dimensions. Another example is that Dr. Honzík systematically studied the bilinear (from the arXiv, even the much harder multilinear) rough singular integrals, I think this is a true breakthrough in the area, given the fact that many mathematicians knew this problem but did not make any progress. Moreover, the novel methods developed in these papers (such as the wavelet decomposition) have become standard tools in this subject. The impact of Dr. Honzík's work is also revealed by the fact that his papers are published in top-ranked journals such as *Advances in Mathematics* (2 papers), *Crelle's Journal*, *International Mathematics Research Notices* (2 papers) etc.

I also would like to give a few comments on the originality check done by the Turnitin system. After careful checking I want to make it clear that the high percentage of coincidence in this check is due to the fact that

- (1) Dr. Honzík's Dissertation is a collection of reprints of several published papers co-authored by Dr. Honzík;
- (2) These published papers have received a lot of citations, where the authors may follow Dr. Honzík's wording.

Overall, given the above facts I think Dr. Honzík's habilitation thesis is of great quality. And therefore he certainly deserves the Czech habilitation degree Docent.

Sincerely,  
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