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doc. Ing. Martin Štefaňák, Ph.D.
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Dear Dr. Štefaňák,

It is my great pleasure and a privilege to write a supervisor's review of the Diploma thesis of Bc. Tomáš Truhlář: "Study of pi+pi-, K+K-, ppbar and pi+pi+pi-pi- production in central exclusive processes with the STAR detector at RHIC ".

The thesis is based on more than one year of very hard work by Tomáš. It includes very advanced and detailed study of the Central Exclusive Production with the STAR detector at RHIC. The work included a series of tasks that are needed to obtain a physics result.

The first step is the quality assurance (QA) of the reconstruction of the events that was done by the STAR computing group (so called microDST files). As is often the case with the first pass, Tomáš found that there was a problem with the geometry of the Time of Flight (TOF) detector so that the miscroDSTs had to be reprocessed.

In the second step the picoDSTs are produced, for which the QA is also needed. Tomáš' very important contribution was implementation picoDST structures Roman Pot detectors and the testing the framework. Once this was done the picoDSTs were produced. Tomáš validated those picoDSTs, called upcDSTs at STAR, for his analysis. One has to stress that the first two steps, although straightforward, were very crucial as the whole analysis and results depend on them. These two steps were very time and labor intensive, but Tomáš persisted and insisted to do it all and without any shortcuts.

Tomáš made also a commitment to present a poster at the ICHEP conference in Prague, setting a very high bar for himself since those results have to be approved by the collaboration, a process during which the comments from the collaboration must be addressed.

In order to produce those results corrections to the "raw" distributions based on the STARsim package needed to be obtained. This step required its own QA process. I would like to point out that very often uncorrected plots are shown as preliminary results, but Tomáš insisted to use STARsim to have the first set of corrections. So, he worked hard and prevailed. As a result, a very solid set of Preliminary Plots for the STAR experiment was obtained. This included invariant mass distributions of π^+,π^-, K^+K^- and ppbar pairs. The π^+,π^- invariant mass distributions were presented for two outgoing-proton angular correlations in the azimuthal angle ϕ.

But this was not enough for Tomáš. During the work on his thesis a new simulation package of CEP, Graniitti Monte Carlo appeared on the market. So Tomáš, in his now usual approach insisted to include comparison with Graniitti in his thesis. He made Graniitti work and produced plots that were used as a comparison with his results. And one can say that they compare quite well.

There are also results in this thesis marked "This Thesis" which are of the quality of the STAR Preliminary and shall become such in the near time.

One more aspect of Tomáš' work is worth mentioning here. He knows how to find the information that he needs to proceed in his work, which is not always easy in a big collaboration. So, at every step he found the right people to talk to.

In a summary and without a hesitation I can say that the material presented by Mr. Truhlář in his Diploma thesis by far exceeds expectations for such thesis. Therefore, I strongly recommend the grade for his Diploma thesis to be A(excellent). In fact, in the US system I would recommend an A+ and his Diploma thesis to be recognized with distinction.

Dr. Włodek Guryn

Physicist
Leader of the Roman Pot Project of the STAR experiment