# Internal jeopardy review for PAC48: Run Group K

June 3, 2020

## General Comments

The document is in reasonable shape. Some strengthening of the introduction is in order. The main driver of the run group was the hybrid baryon search – does one want to highlight that with the LHCb pentaquark, the understanding of exotic baryons is again a hot topic? Measuring transition form factors from kaon electroproduction is a complementary activity to this.

It would be good to highlight was DVCS at lower beam energies is required to achieve the goals described, besides being possible in the experimental configuration. I.e. why is the DVCS measurement at 11 GeV (mentioned in the text) not suitable for these studies?

## Specific Issues

1. Fig 1: Nice summary of the progress of the data collection, however the labels are rather small

The figure has been remade to improve the readability of the labeling.

1. Page 2, para 4: will be employed in this Run Group proposal -> are being employed in this Run Group program

Done

1. Page 2, para 7, line 3: very remarkable -> remarkable

Done

1. Page 3, para 2: include a reference to the publication from which figure 2 is presented
2. Page 4, para 2, line 4: “a distinctively different Q2 evolution of the hybrid-baryon electrocouplings is expected” – is there a reference for this statement?

Added reference

1. Fig 3: Why does the missing mass of the K+ not show the Sigma-0 peak, as it does in the plots in fig 4?
2. Fig 4: The plots are too small to read the detail. Perhaps one plot at four times the (area) size? Consider including only one of fig 4 or fig 3 RHS.

Remade figure and improved caption

1. Page 7, Section 4.3, line 1: “The fall 2018 RG-K dataset amounts to about 7% of the approved RG-K beam time of 100 PAC days”. This is probably true in terms of accumulated charge, but is inconsistent with the earlier request of 88 more PAC days out of the approved 100. Be consistent.

We have consistent stated throughout the document that the RG-K fall 2018 dataset amounts to 7% of the approved PAC days. The statements here are consistent.

Actually, the RG-K data set corresponds to 12% of the RGK ABUs but only to 7% of the accumulated charge. The difference Is due to us running at lower luminosity than anticipated. The difference has been important to Physics Division. Rolf counts % of ABUs not of the accumulated charge. We could only argue that the 7.5 GeV has been far from the 8.8 GeV and the sensitivity of that data set is much lower than planned for (only applies to the DVCS part).

1. Page 7, Section 4.3: It might be worth elucidating what the factor 20 increase in statistics might help produce in terms of new science that has not been possible previously.

I have updated this paragraph to make the argument crisper.

1. Page 8, fig 5: define \alpha. Is the symbol well known as beam spin asymmetry?

The caption has been updated to define alpha.

1. Page 8, last three lines: this is the third version illustrating the fraction of the run completed, now explicitly by accumulated charge. As above, be consistent.

The numbers given state the charge totals for the data used in the figure, this not the full 7% of the dataset for RG-K, but the 17 runs added together at 6.5 GeV and 7.5 GeV. I have updated the figure caption, but the text makes sense to me as written.

1. Page 9, last line before Summary: Is it possible to demonstrate why the full statistics originally approved are required? A plot of projected results?