Round 1 Feedback Questions

1. **The W resolution in sector 6 is significantly worse than the other 5 sectors.** I am looking into this, if you have any ideas based on past analyses please let me know.
2. **During kaon identification a cut is applied to the electron-kaon vertex difference, the cut boundaries are 5cm apart to match the size of the target. Two referees disliked this cut and encouraged us to remove it or loosen it, a third encourages us to tighten it. The distribution is not Gaussian (tails are longer).**  This cut reduces some multiple scattering events at low momentum, we can try to justify it more rigorously or just remove it because it has little impact. Please let me know your thoughts.
3. **The vertex corrections are computed based on the beam position offset in the x-y plane, this is done by integrating over all runs. It’s unlikely the beam position was stable over all runs, should this correction be applied run-by-run?**  This comment is valid, but the vertex corrections work quite well (perhaps the beam position was stable). This is demonstrated by the figures of vz vs. phi. We could try plotting the beam position over the runs or simply stating that the correction works and has been applied before. Please let me know your thoughts.
4. **Why are fiducial cuts applied to regions 1 and 3 during electron ID and not region 2?** I don’t know the answer to this question. Maybe it has something to do with the regions being inside of the torus. Please let me know your thoughts.
5. **There needs to be an estimate of pion contamination to the signal.** We discussed this at our previous meeting and I would like to propose the following:
   * A simple solution is to place a maximum on kaon momentum without justifying it deeply. A simple fit of the two signals and computation of the contamination could be used.
   * The ideal solution is to have MC/Data that perfectly match and to use the truth information from MC to test your particle identification as a function of momentum and define a cut based on the contamination calculated this way. In practice the data and MC are probably not in agreement well enough to do this. First, this needs to be checked. I will do so by using a mixed sample test. If the two distributions agree I will follow this straight-forward and consistent method. If they are different, I will first apply a data fit similar to the “simple” solution where I calculate the overlap of the two signals and compute a contamination as a function of momentum. After doing so, I will apply the same procedure to the MC, since we can calculate the contamination exactly using the MC we can show that our fitter method approximates correctly the contamination of the distribution (even though MC is not the same as data it’s okay, we just show our method works). Please let me know if you have thoughts on this procedure.