

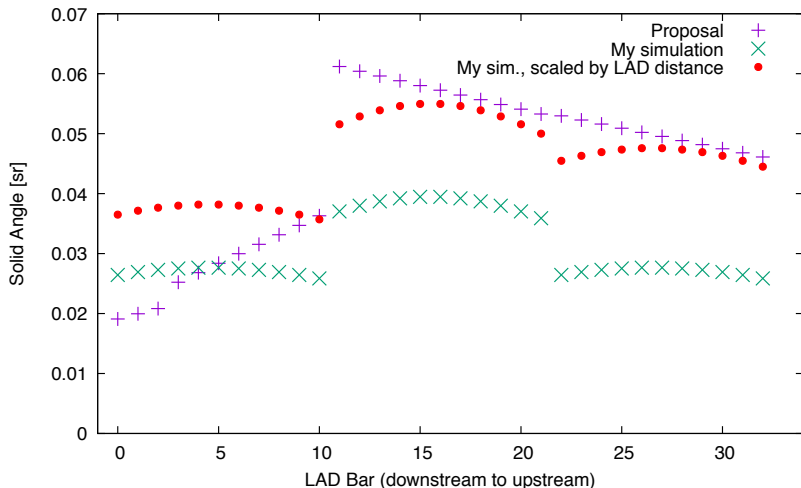
# Summary

As a first step to validating the simulation, I tried to reproduce the proposal rate estimates. We expect a slight drop in rates because:

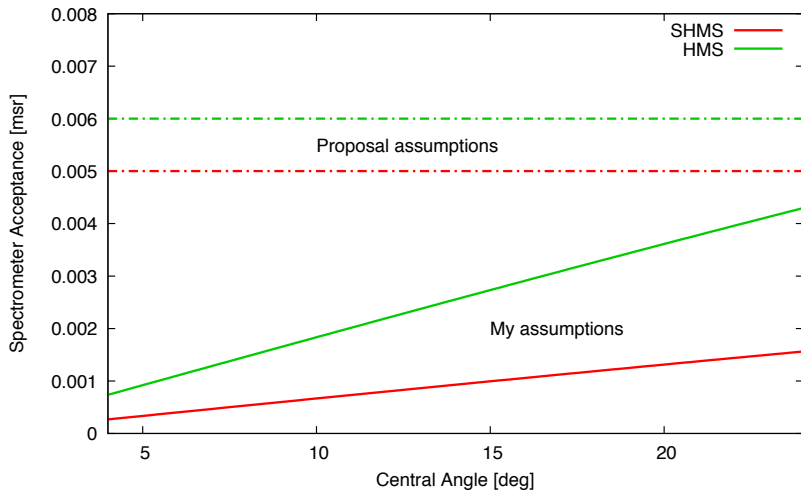
- 1 LAD bars are farther from the target
- 2 Proposal assumes spectrometers have constant acceptance, I assume  $\sin(\theta_c)$  dependence

Even correcting for these effects, I see about a factor of 2 drop in rates. This is suspicious and to me indicates there is at least still a bug in the code, or a bad assumption.

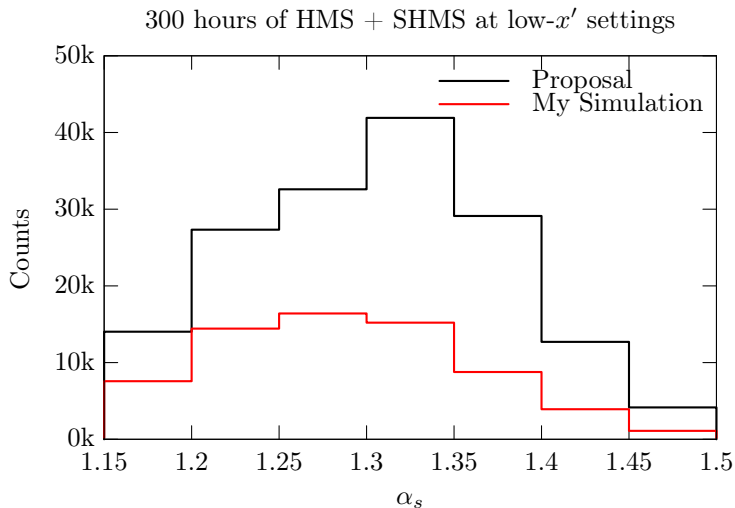
The movement of the LAD bars changes their solid angle consistent with  $1/R^2$ .



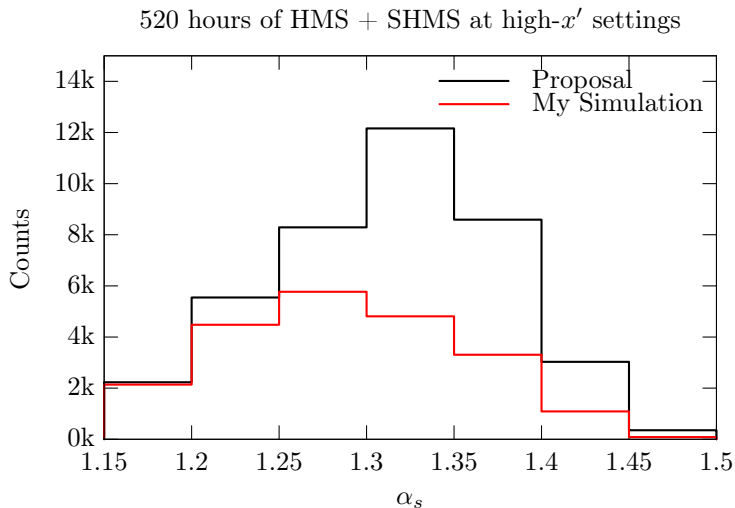
I think the proposal is optimistic about the spectrometer acceptances.



Even accounting for these differences, my calculation comes up short.



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# Priorities

- 1 Find where this difference is coming from.
- 2 Show how modifications affect rates.
  - New LAD position
  - Vertex cuts (using GEM detectors)
- 3 Optimize detector settings given new set-up.