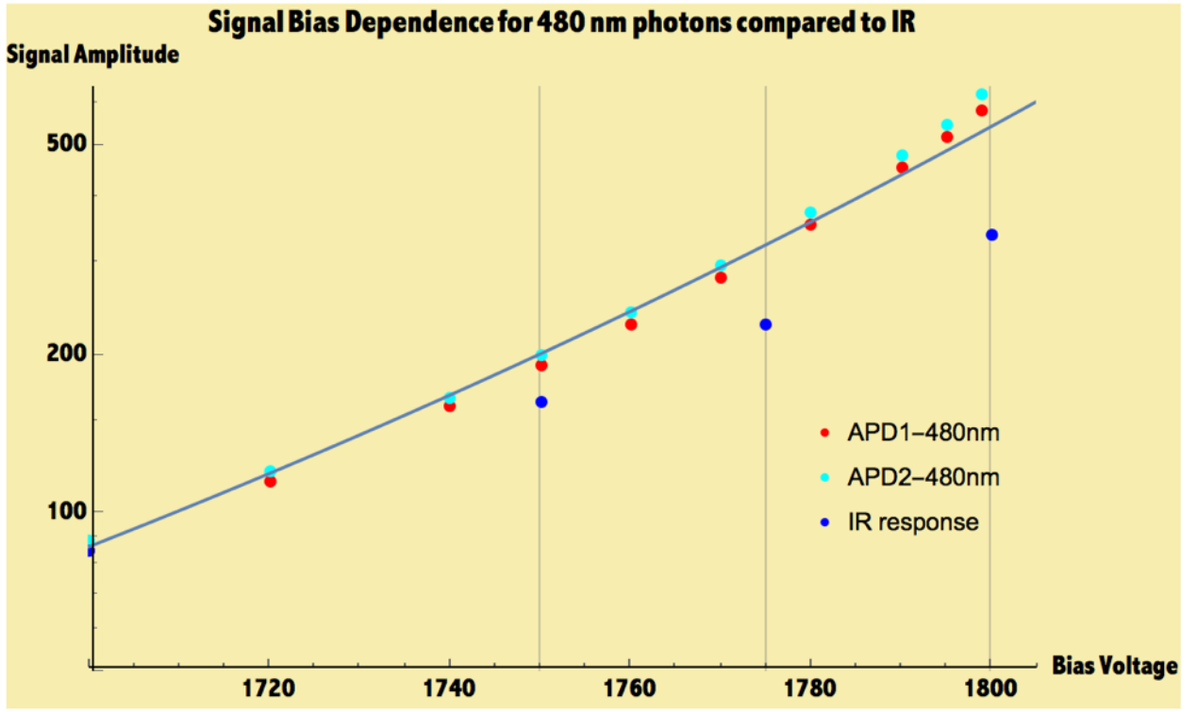
Measurements to benchmark Si modeling

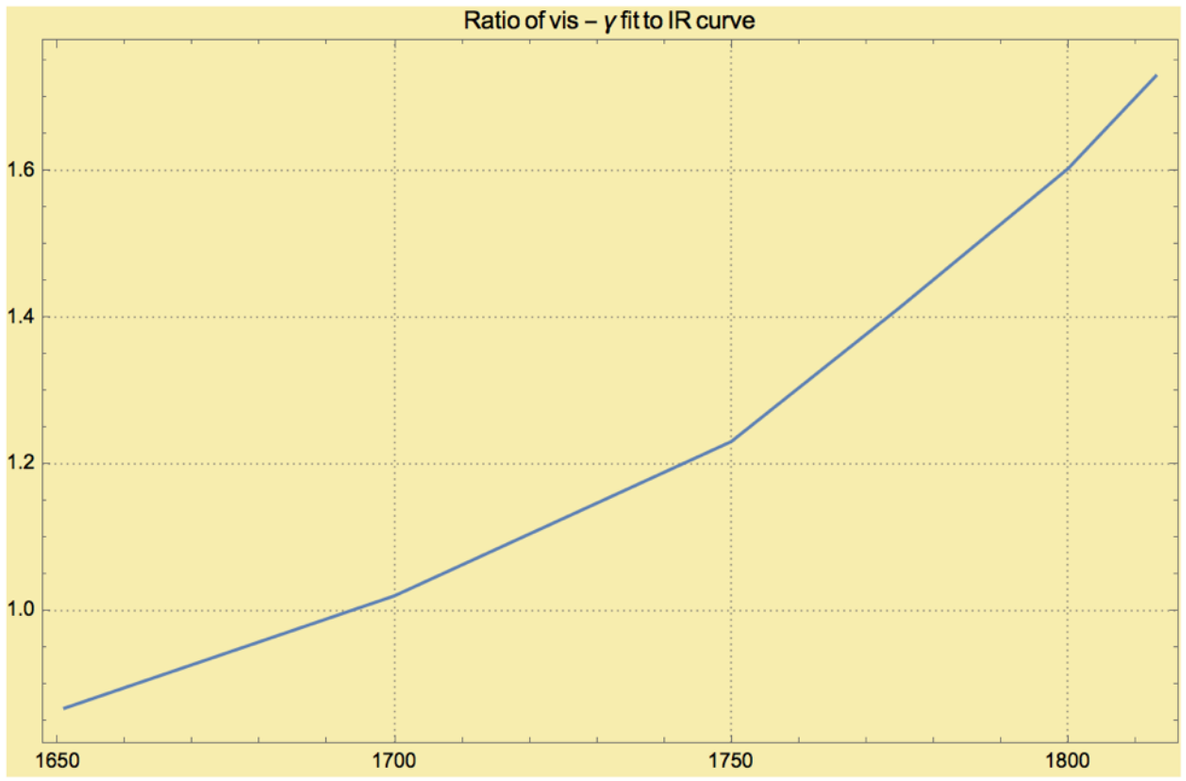
S. White, Dec. 11, 2015

simulation now well under way by Indian collaborators

what measurements could we make to test whether modeled correctly?

Response to Red&IR vs. Bias HV

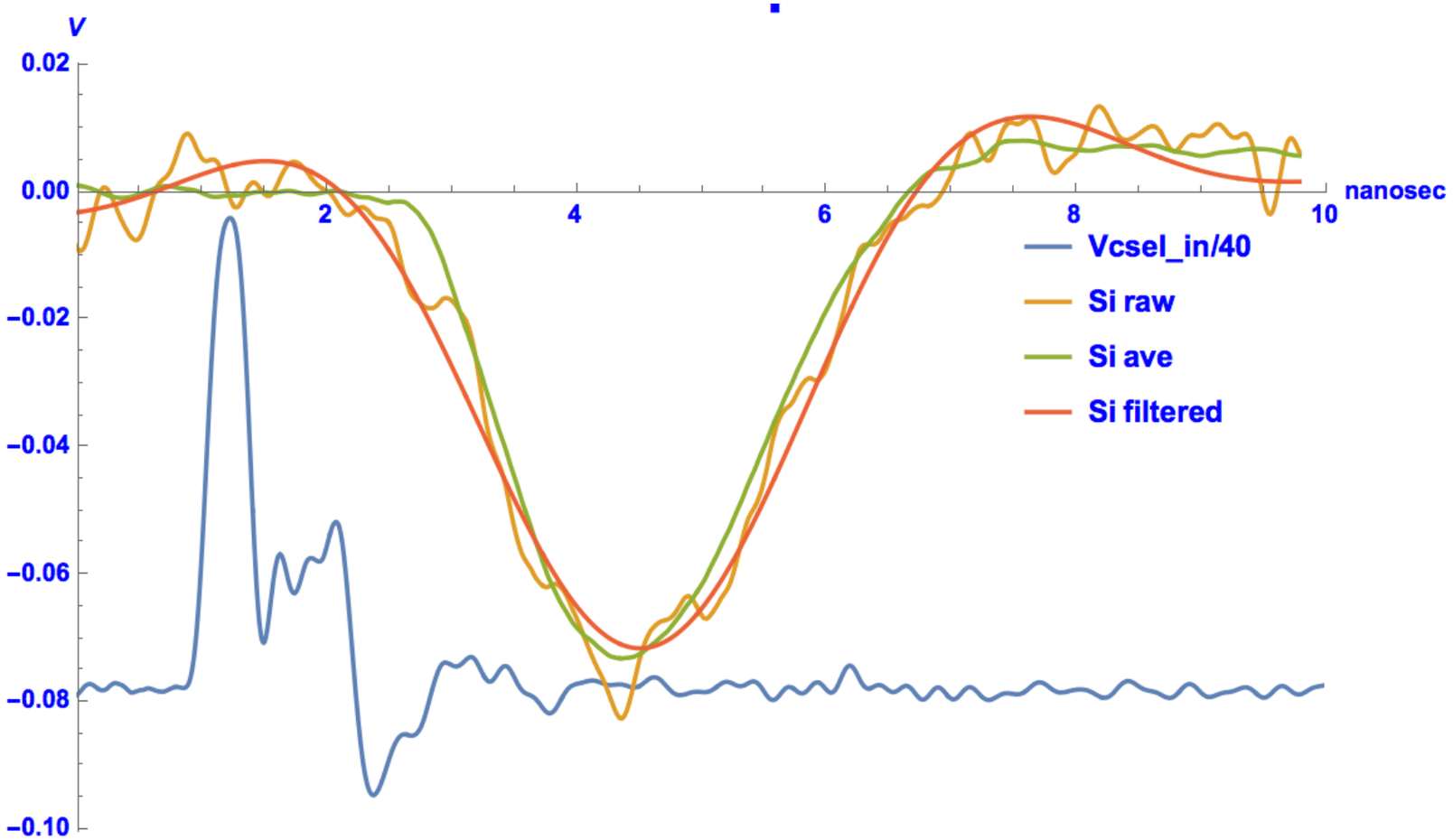


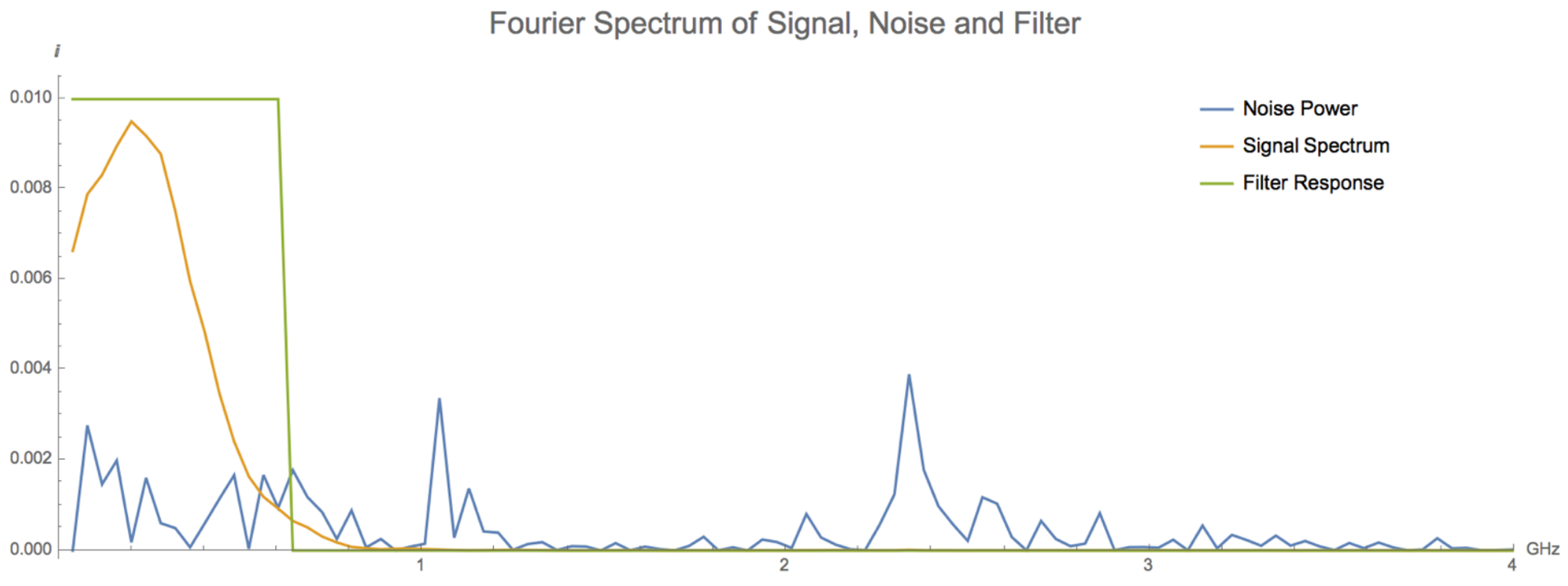


this can be viewed for evidence that gain curves done as dc measurements with 480 nm is not representative of the Bias dependence of the response to MIPs
the interpretation is complicated by the fact that 480nm photons interact in a shallow surface layer and the higher bias may result in better extraction efficiency

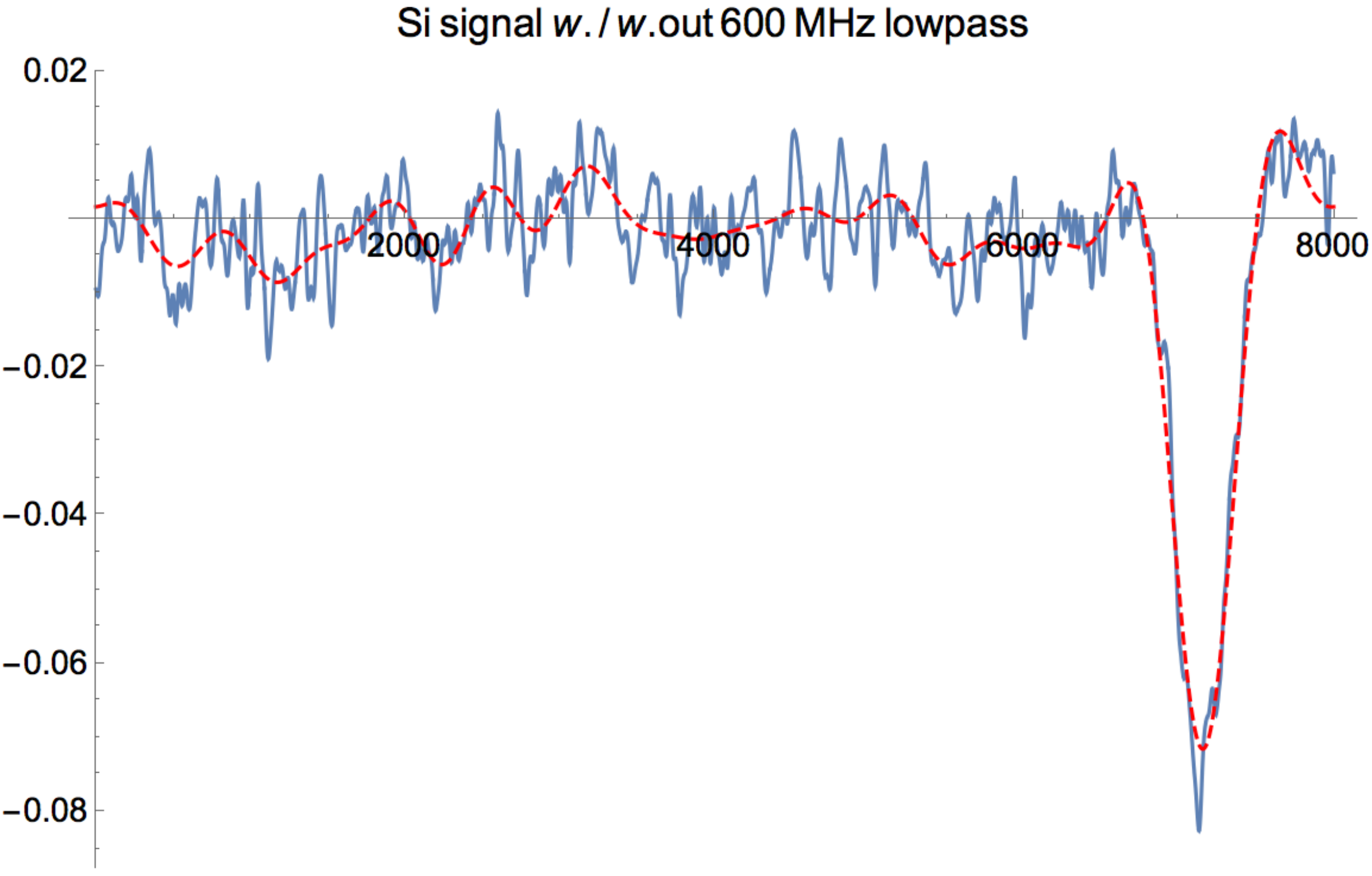
Pulse Width vs. HV

Out[384]=

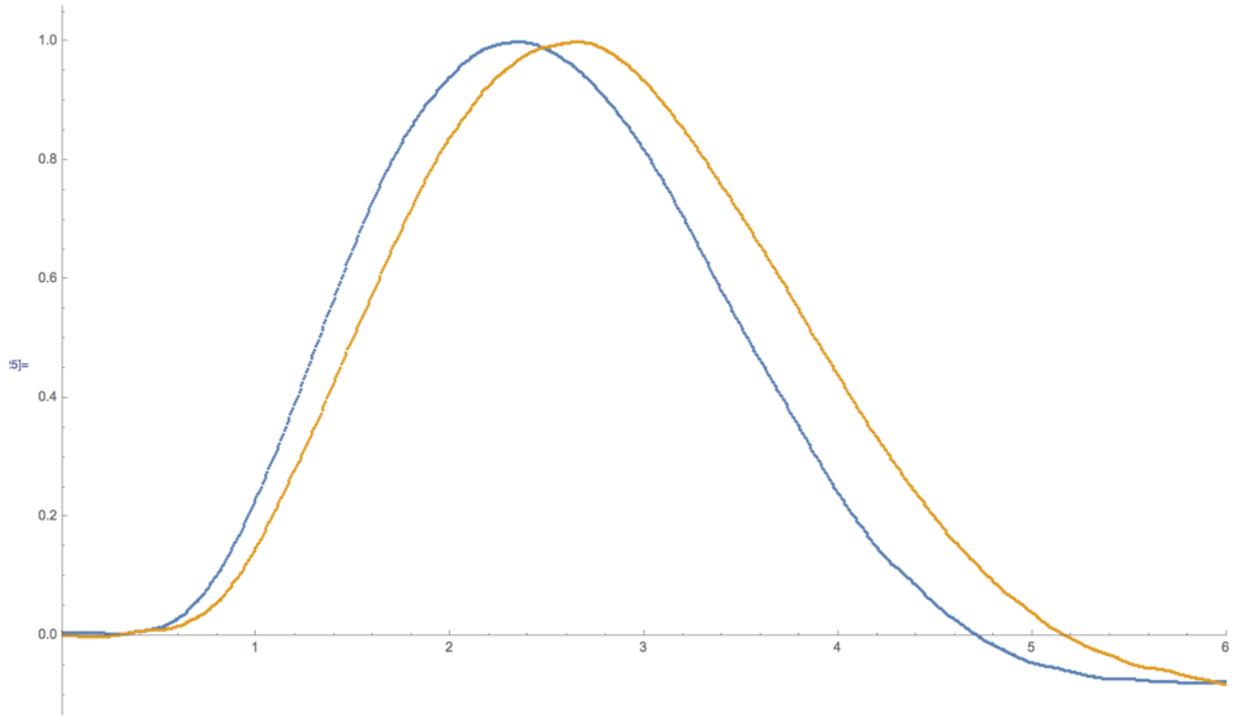


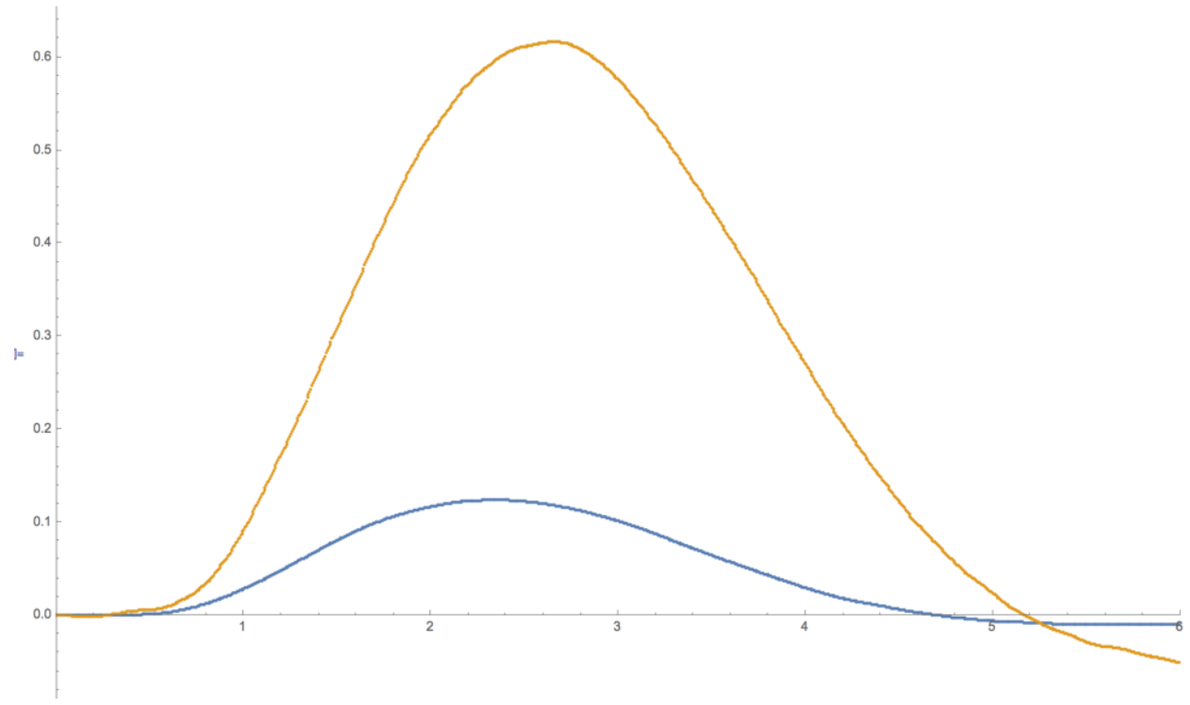


filter


Si signal w./w.out 600 MHz lowpass
0.02
−0.02
−0.04
−0.06
−0.08
2000
4000
6000
8000

Time Structure vs. Bias





above are waveforms for 1700V bias (blue) and 1813 V (gold) In the left plot the signals are scaled to each have peak amplitude=1. Clearly the signal is faster at low bias. Whether there is a slew rate limitation or an intrinsic better speed in the lower bias case is unclear.