Evaluation of PSF

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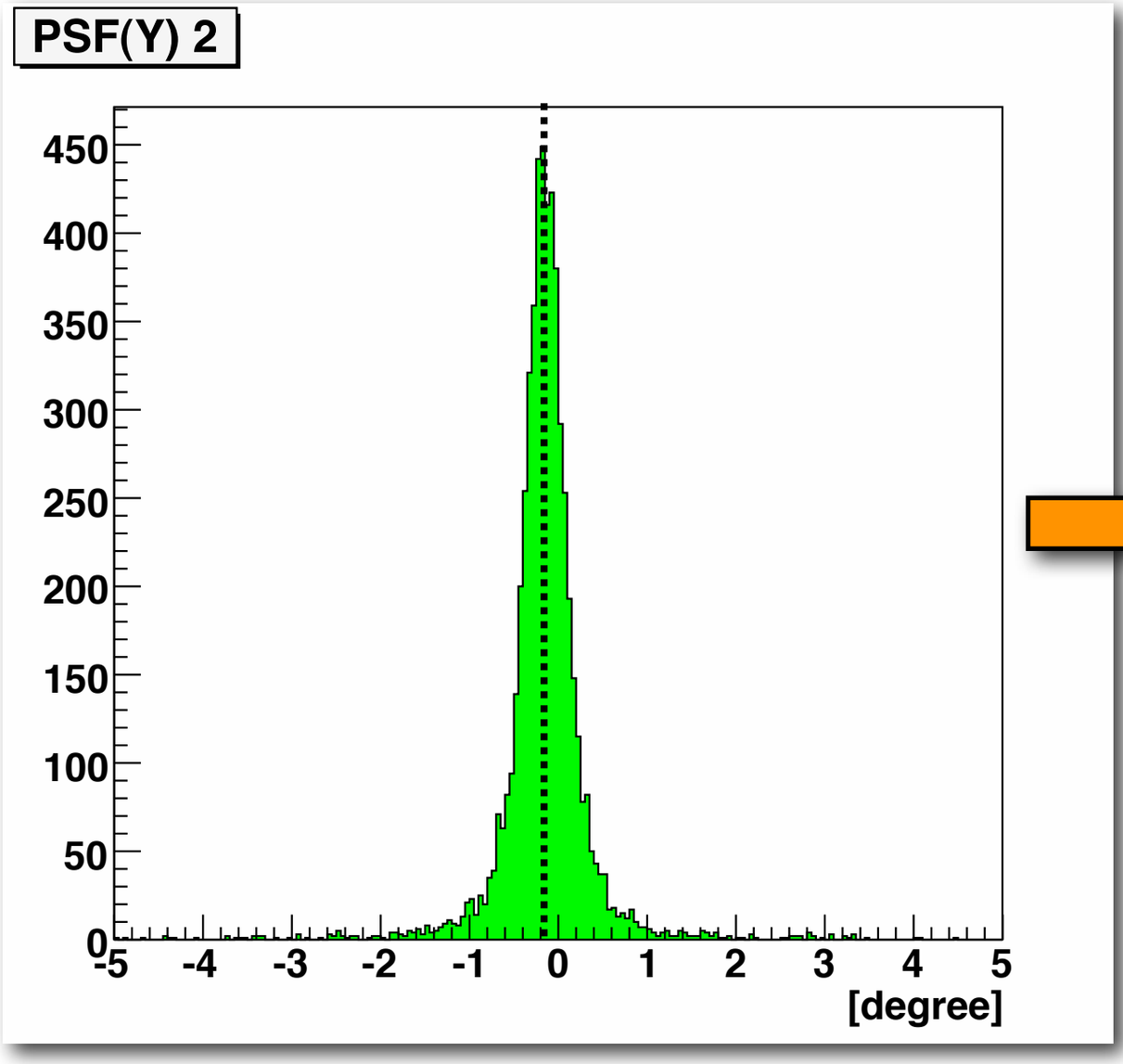
Content

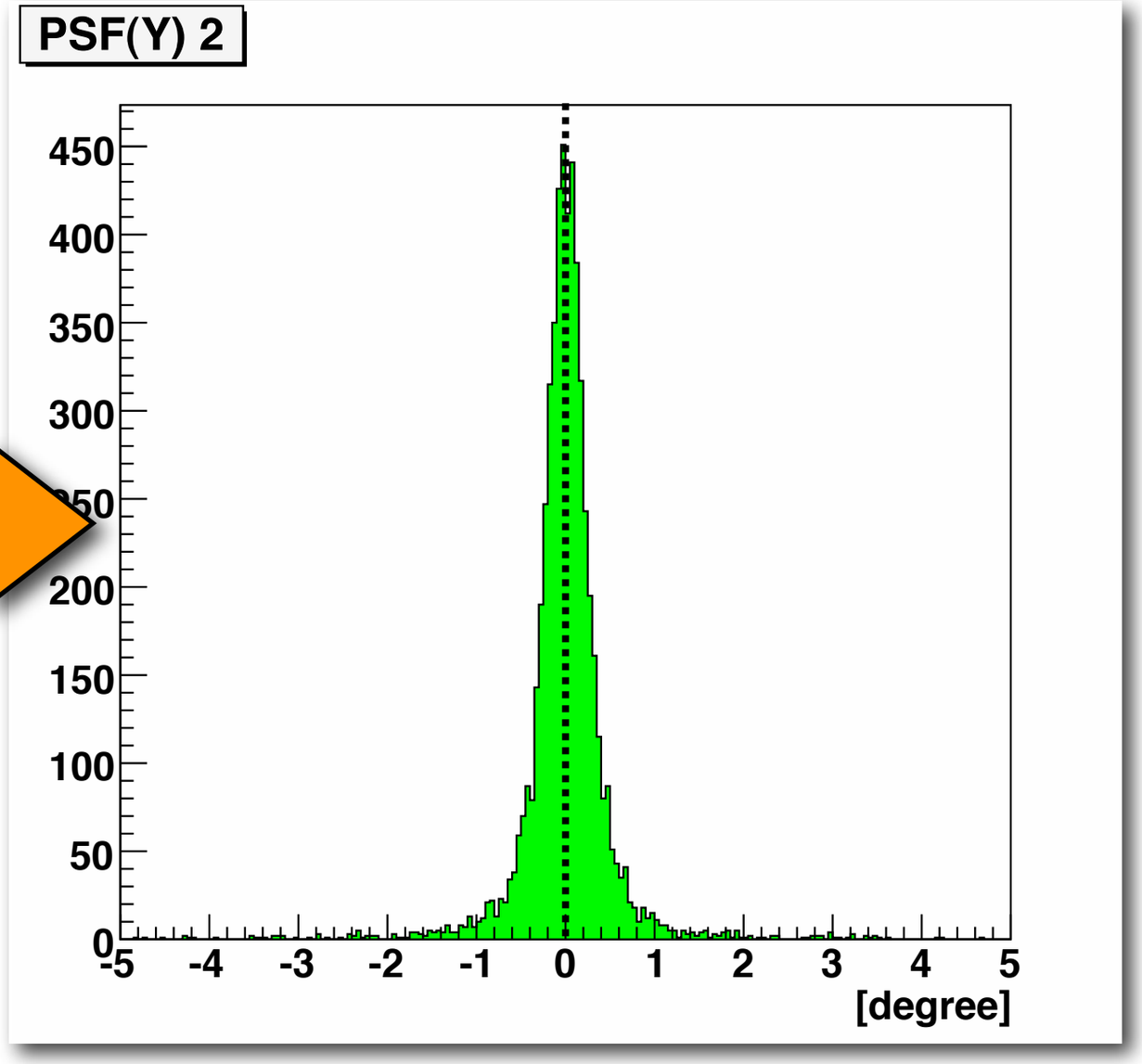
- Obtain actual beam direction from electron runs (Thanks to David)
- Fit the ΔX/ΔY distributions with two gaussians (one for the core peak, the other for the tail structure).
- See the dependence of the obtained parameters on values of VtxS[XX/YY].

Beam Direction

Electron runs with the same configuration (without moving the CU)

Obtain the actual beam directions



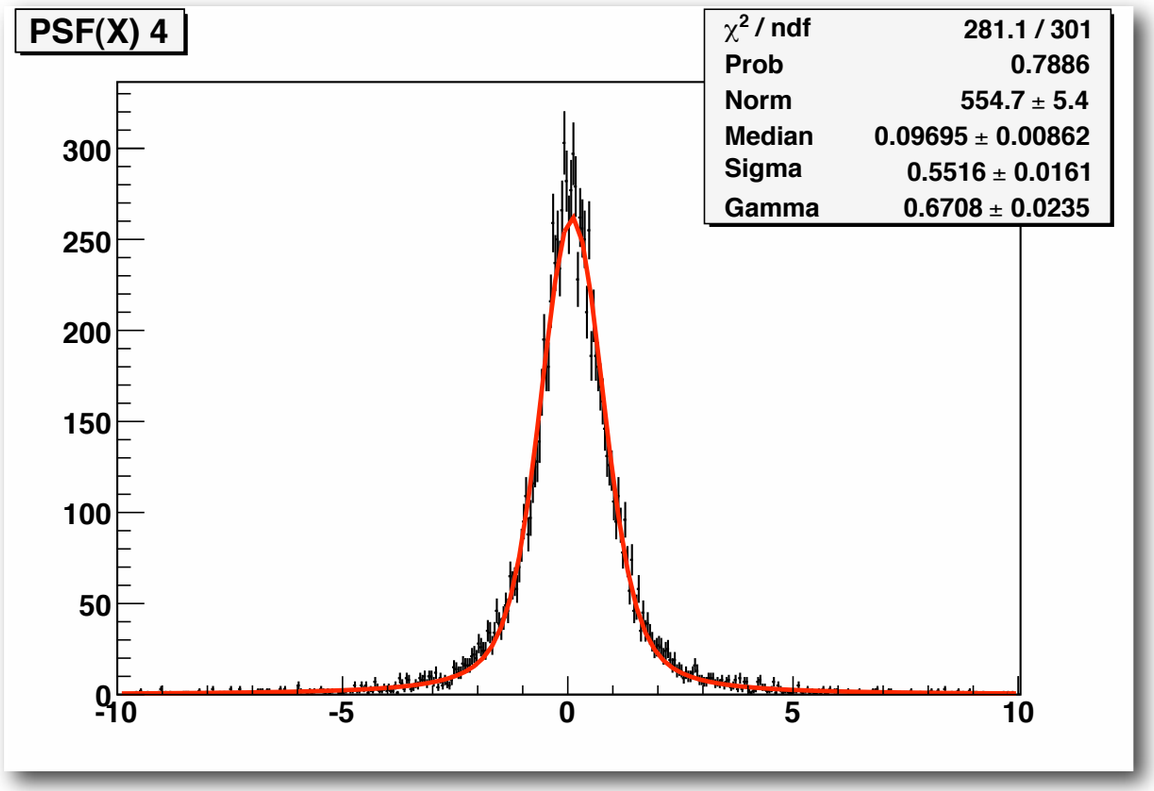


Two Gaussian Fit

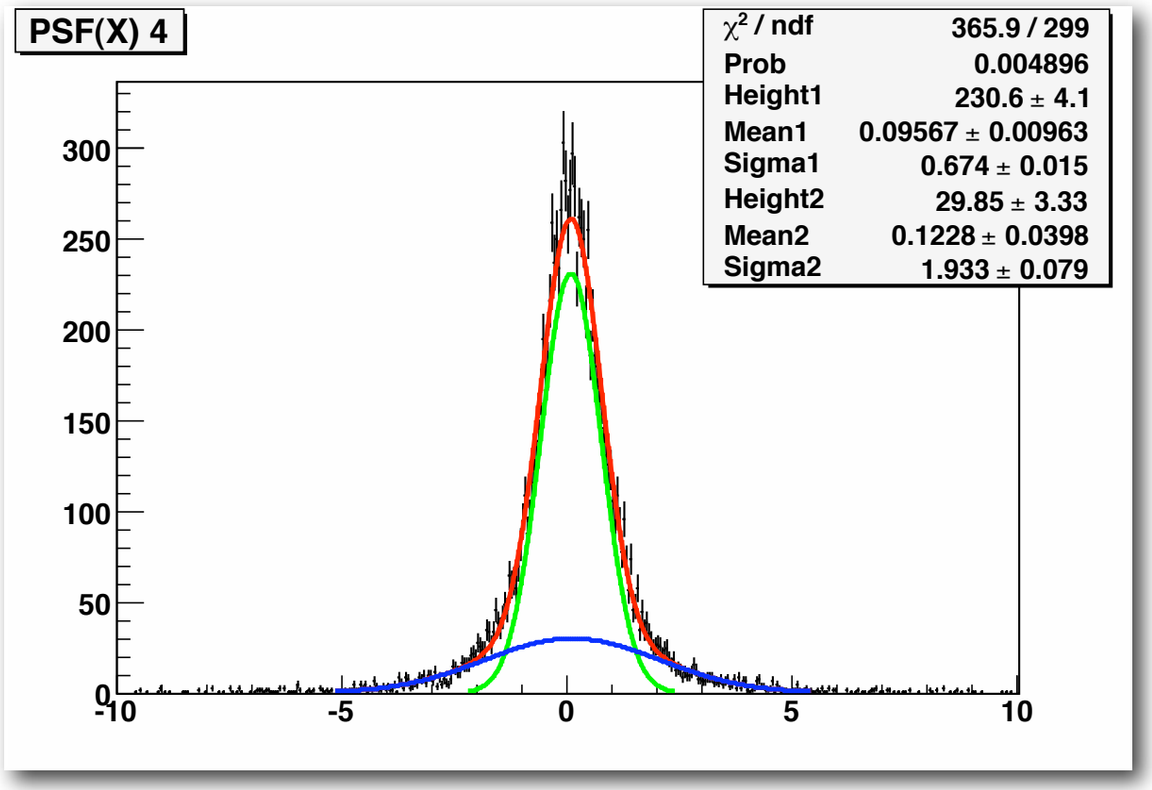
Tried two-Gaussian fit (core peak & tail)

Although Voigt function generally gives better fit, we used two Gaussian hereafter because of its simplicity

Voigt Function



Two Guassian

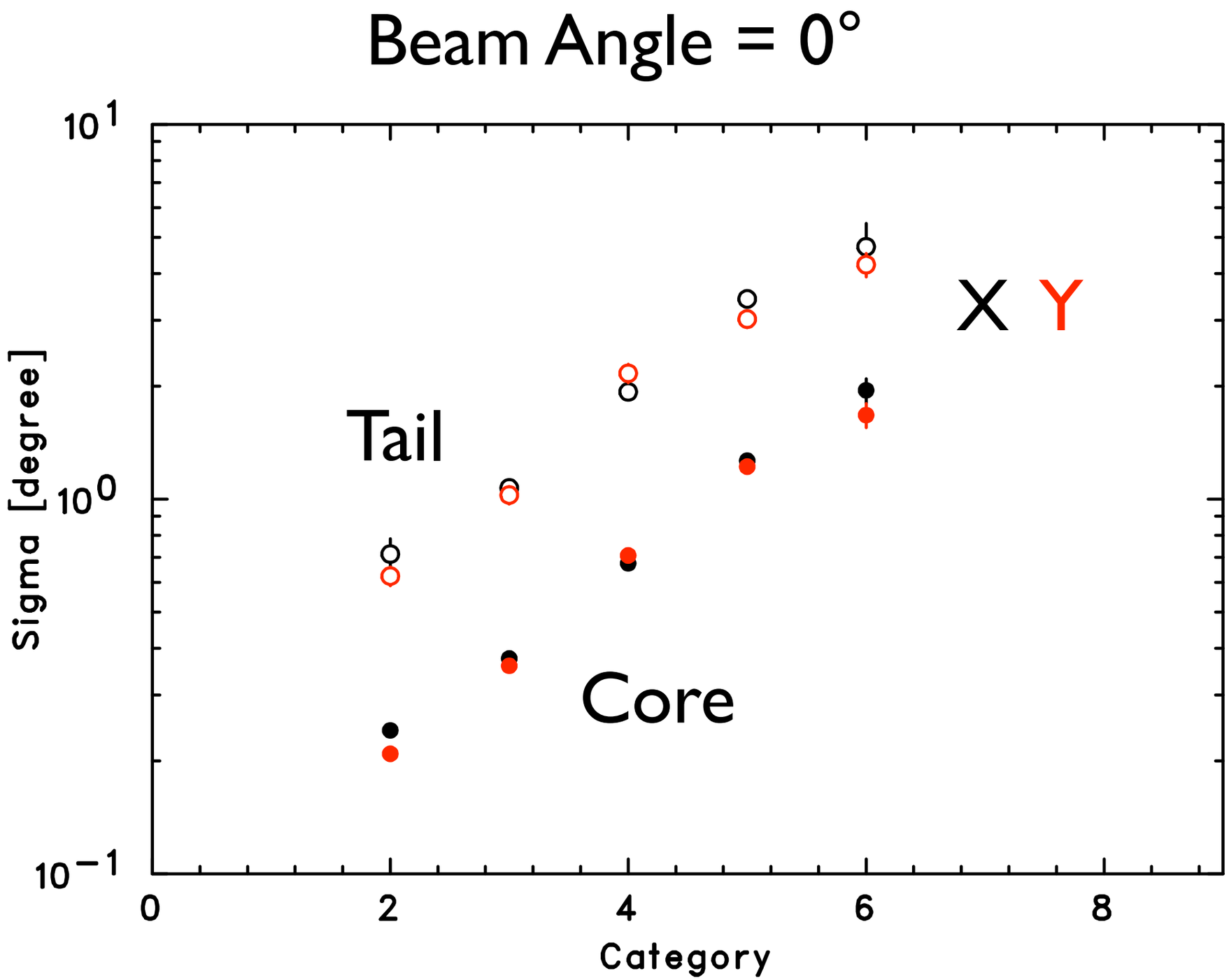


Sort by VtxS[XX/YY]

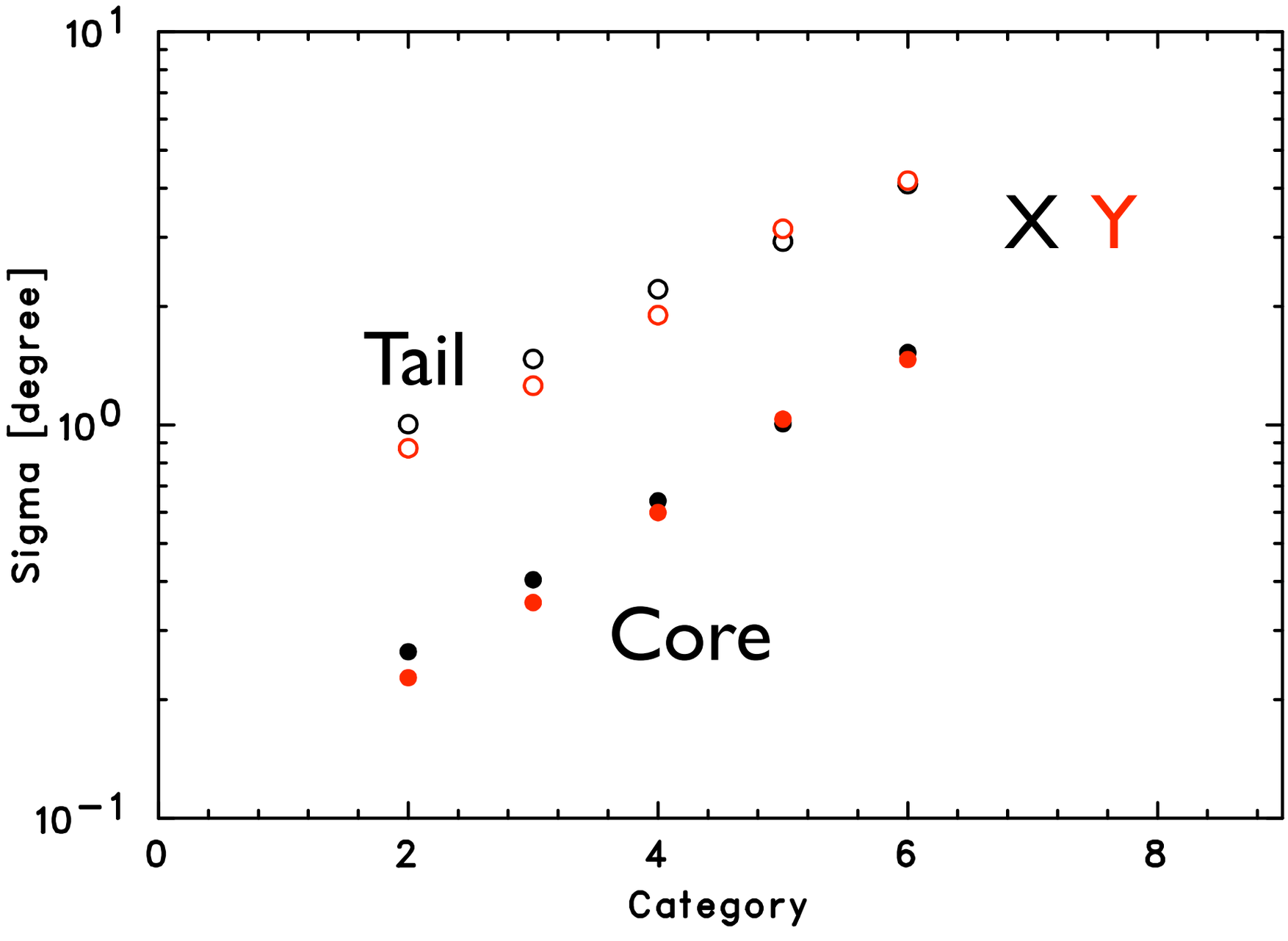
Sorted the events with the criteria below

Category	VtxS[XX/YY]
2	1.6×10^{-6} -- 6.3×10^{-6}
3	6.3×10^{-6} -- 2.5×10^{-5}
4	2.5×10^{-5} -- 1.0×10^{-4}
5	1.0×10^{-4} -- 4.0×10^{-4}
6	4.0×10^{-4} -- 1.6×10^{-3}

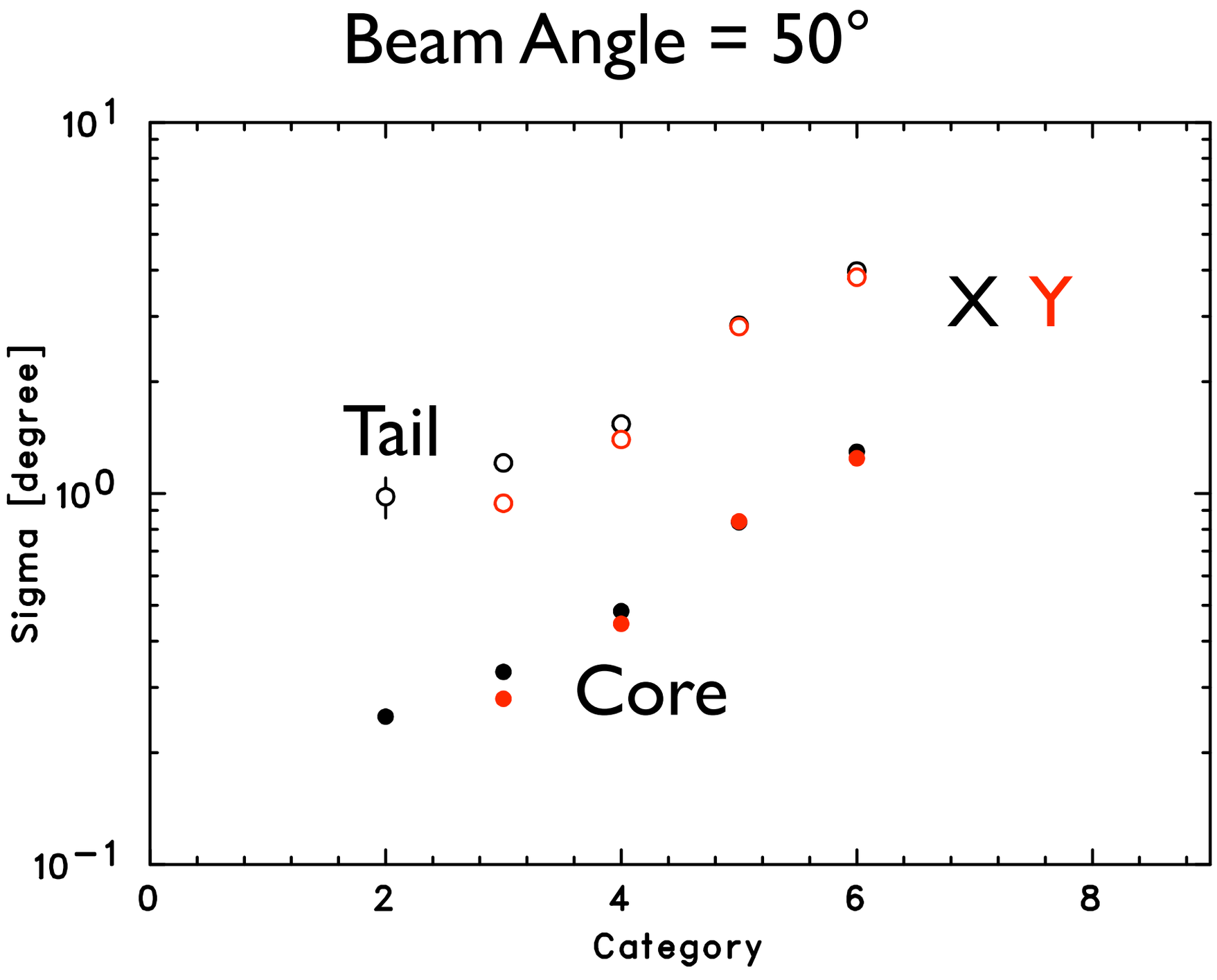
VtxS[XX/YY] vs Sigma



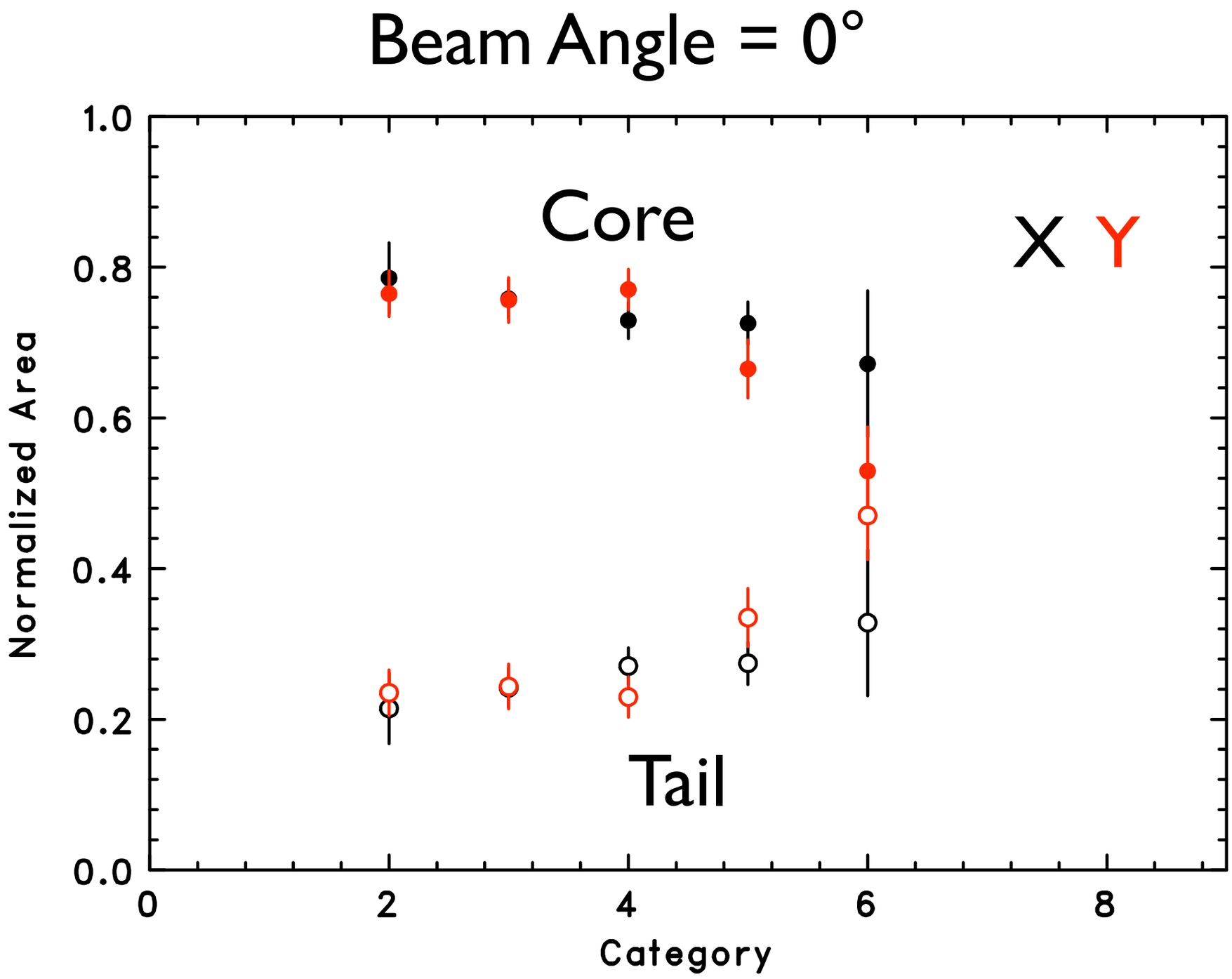
VtxS[XX/YY] vs Sigma



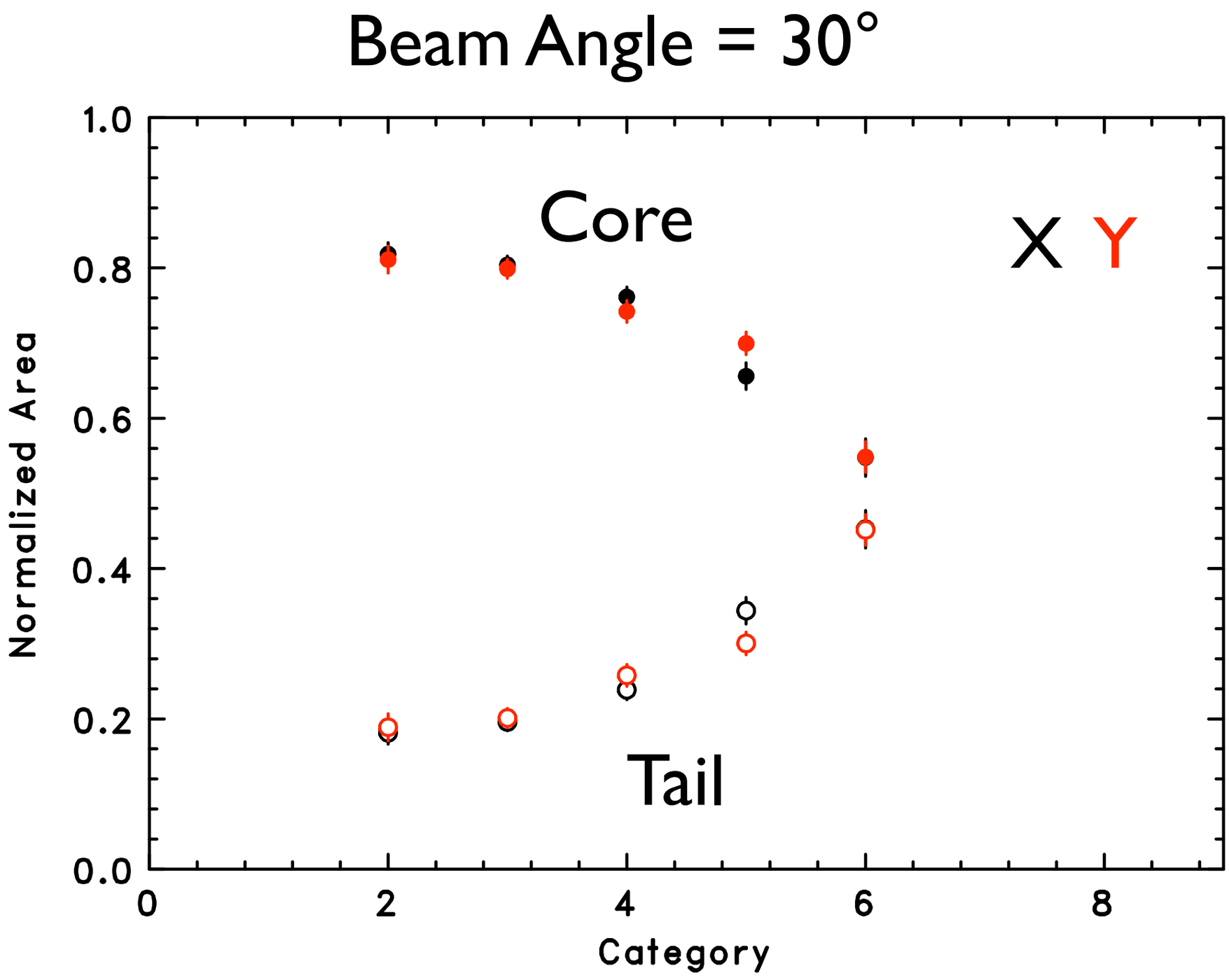
VtxS[XX/YY] vs Sigma



VtxS[XX/YY] vs Area



VtxS[XX/YY] vs Area



VtxS[XX/YY] vs Area