

So far I didn't figure out simulating the pinhole. To make it simple, I still use an infinite far away star with $\text{mag}=15$. Then the incident light beam on the lens should be parallel. To make sure photons can focus on the detector, I replaced the first lens. Instead of using a focal lens ($R=121.9\text{ mm}$), I use a divergent lens ($R=-45\text{ mm}$)

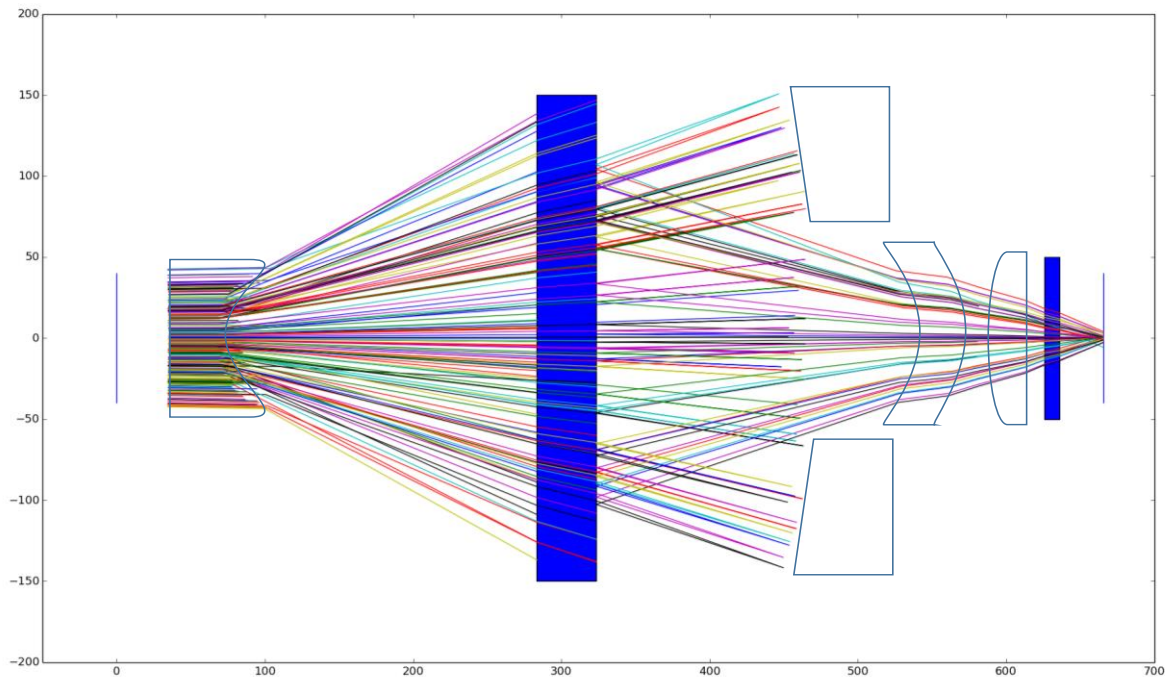


Figure 1. 2D Ray tracing of UC Davis setup. The ray trace is from my python code, but the optics element (lenses, mirrors) are added separately. So those elements plot might look weird. Color does not indicate wavelength. Total number of photon reaching the first lens is 1320. Unit used here is mm.

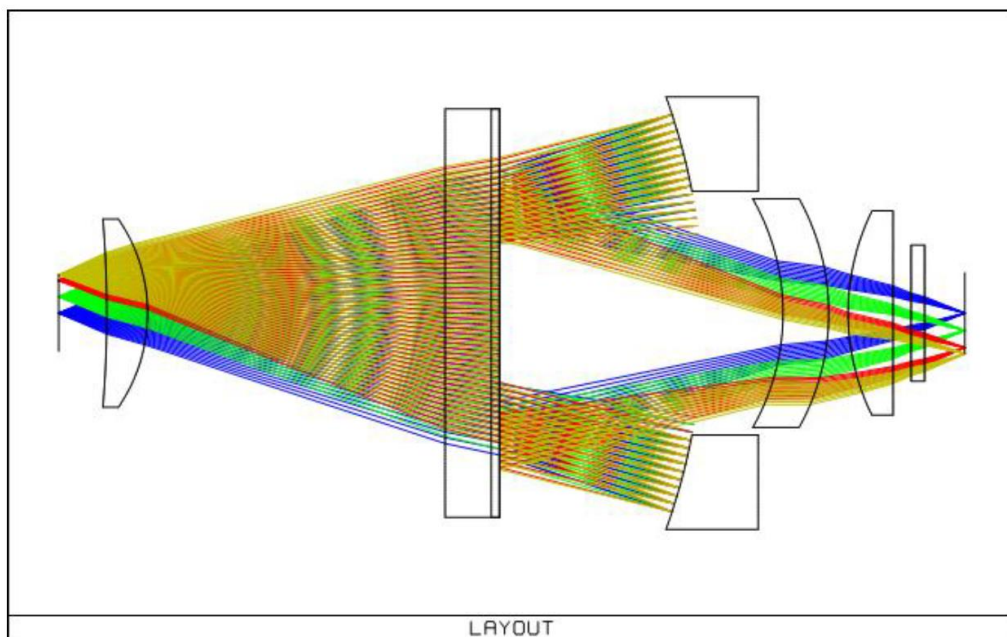


Figure 2. Original UC Davis setup ray raytrace from J.A. Tyson.