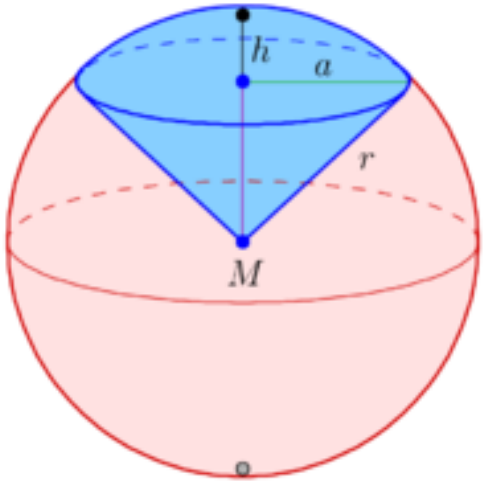
# PBH Simulation Update

8/10/2018

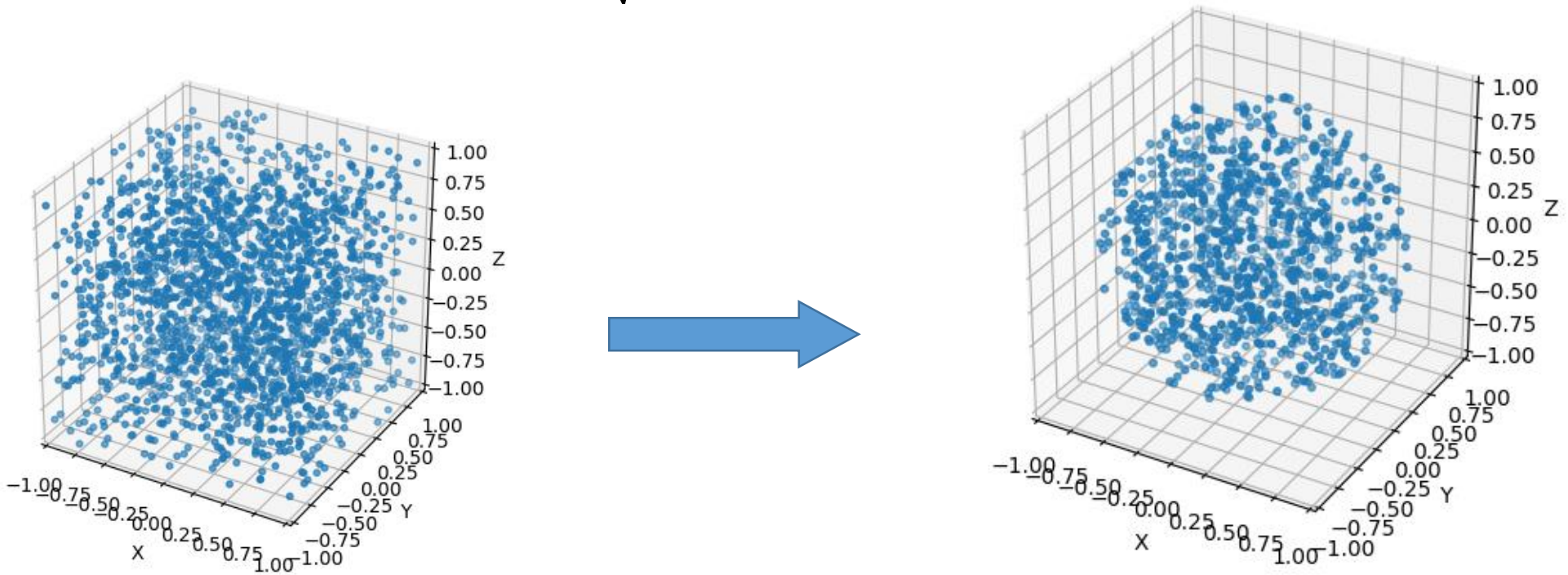
# Expected number of events in field of view

- Volume of sector of sphere:
- $V_s = \frac{2}{3}\pi r^3(1 - \cos\theta)$
- $V_t = \frac{4}{3}\pi r^3$
- For $\theta = 50°$, $V_s/V_t \approx 18\%$



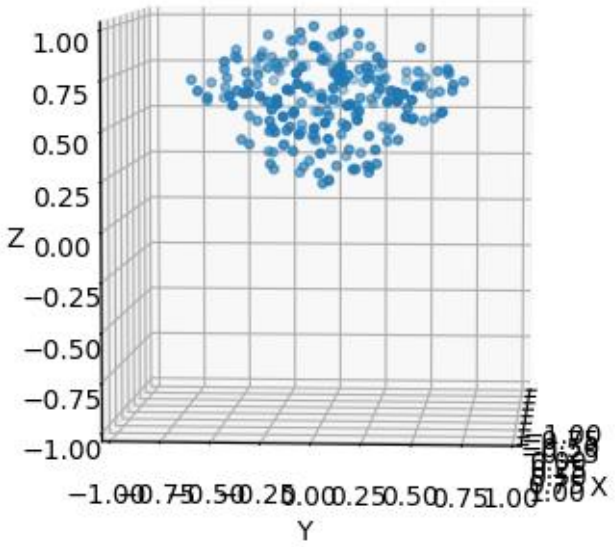
# New method of PBH simulation

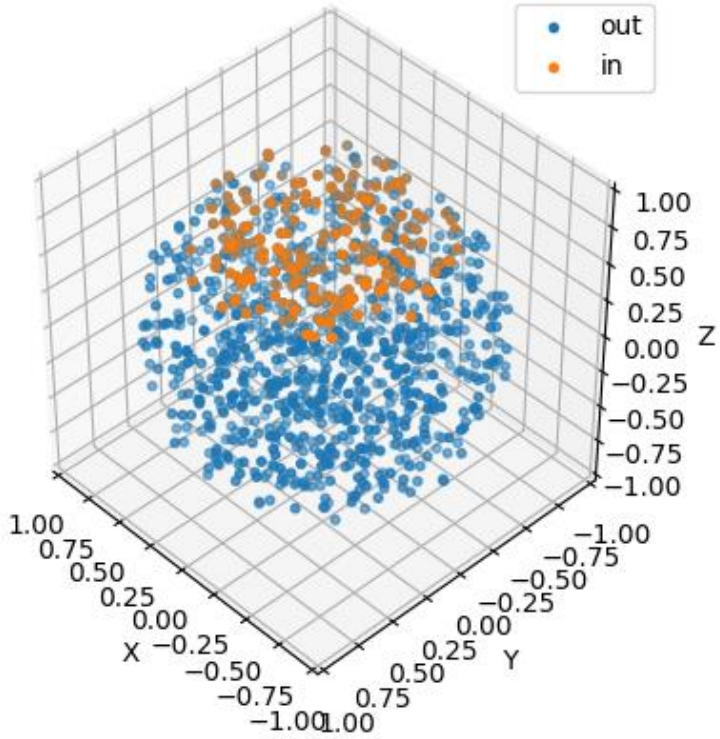
- Generate points uniformly in x, y, and z
- Throw out points with $r = \sqrt{x^2 + y^2 + z^2} > 1$



# Results

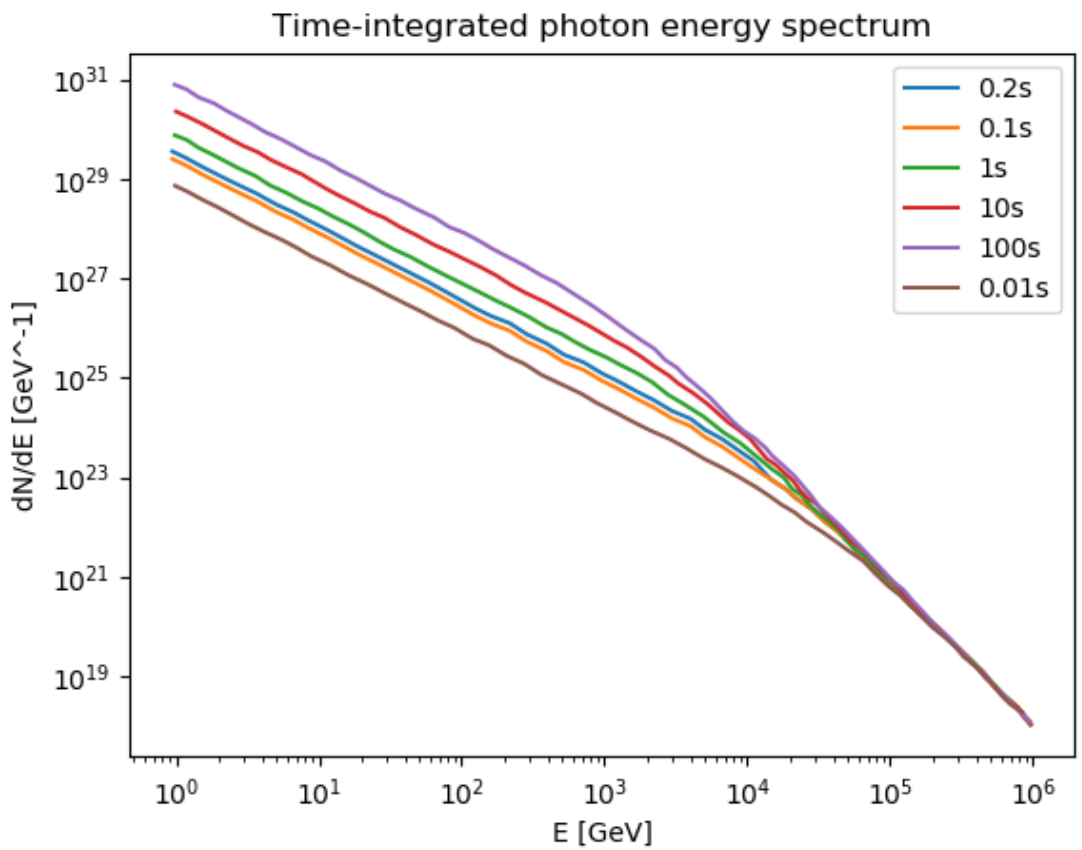
- Throw out events with $\theta > 50°$
- Get 18% events in field of view

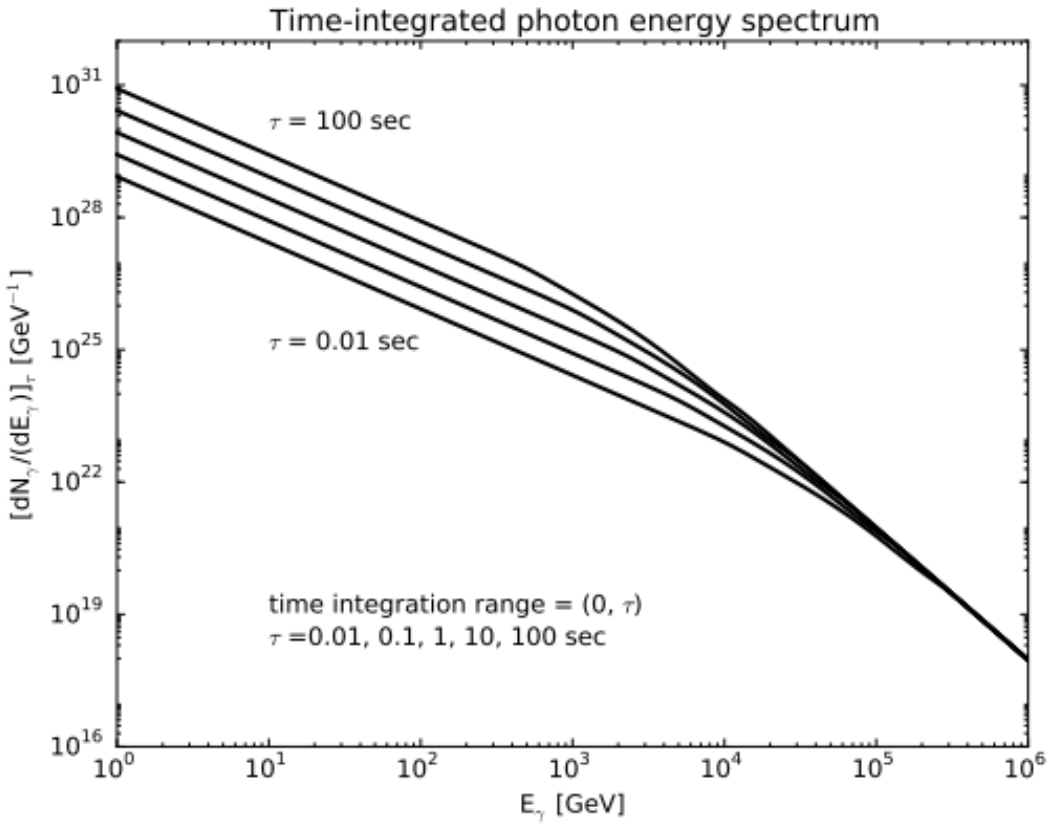


# Next steps

- Have spectrum and simulation
- Read zebra documentation
- Talk to Josh and Israel
- Unavailable next week Tuesday-Friday 9am-3pm




/data/disk01/home/peiskera/pbh_analysis/pbh_E_spectrum_0.2s.txt