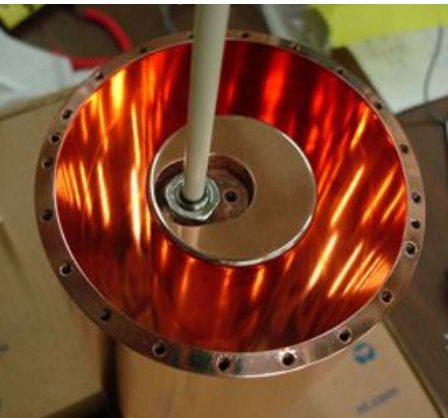


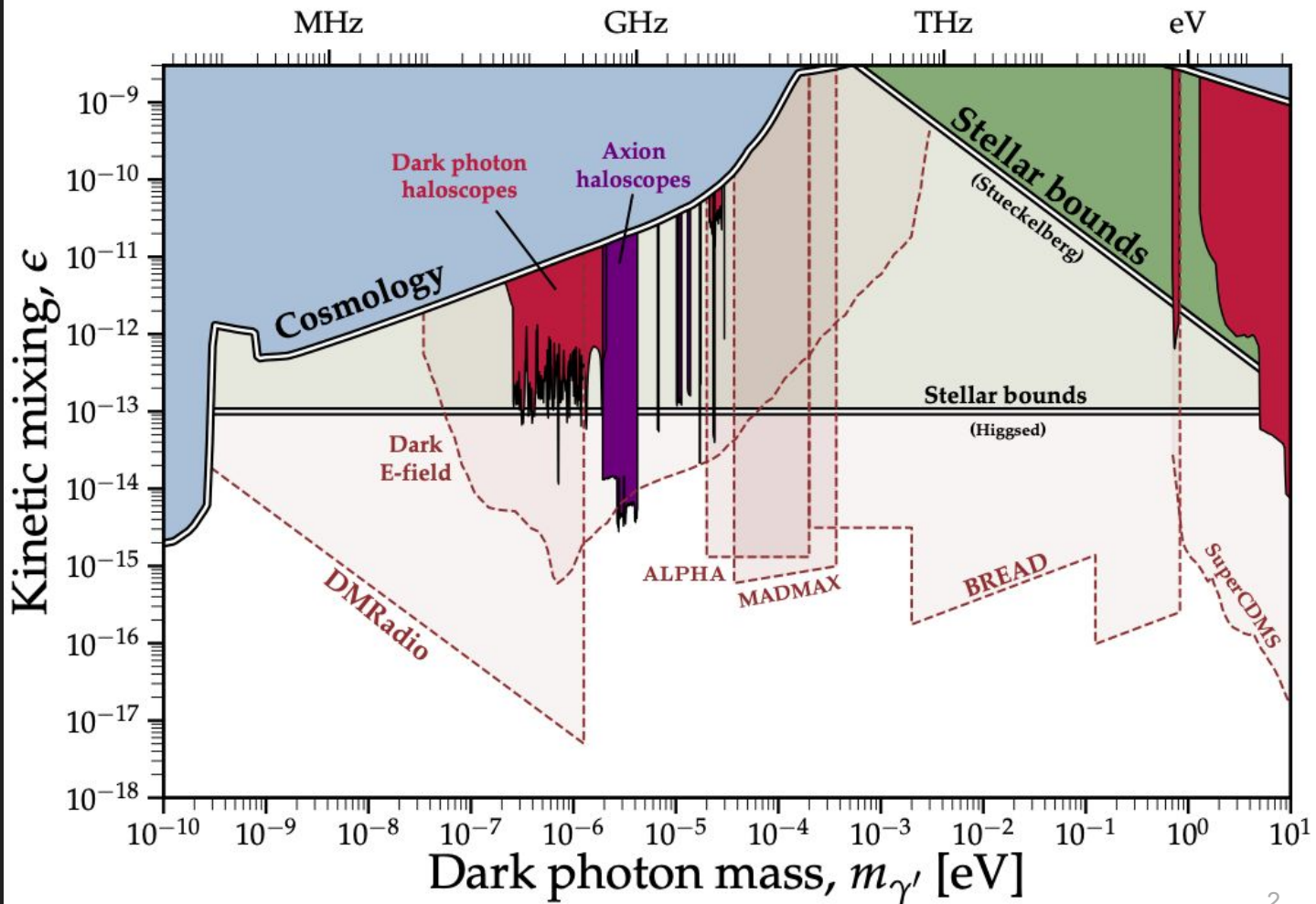
# A broadband search for dark photons with HAYSTAC



Sumita Ghosh  
Wright Lab Quantum Sensing Workshop  
April 8th 2022

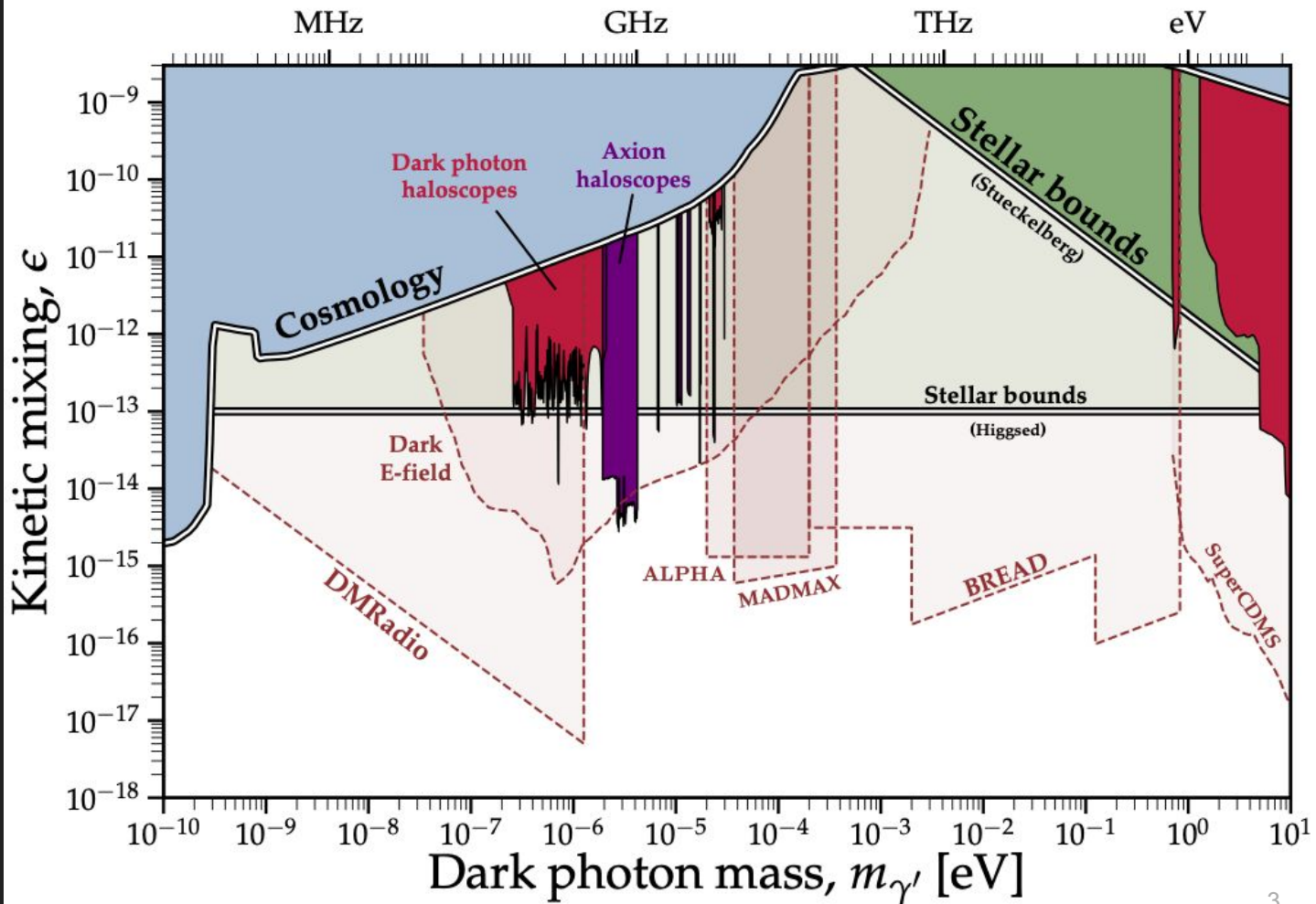
# Dark photons

- Dark matter candidate
- Detectable with HAYSTAC

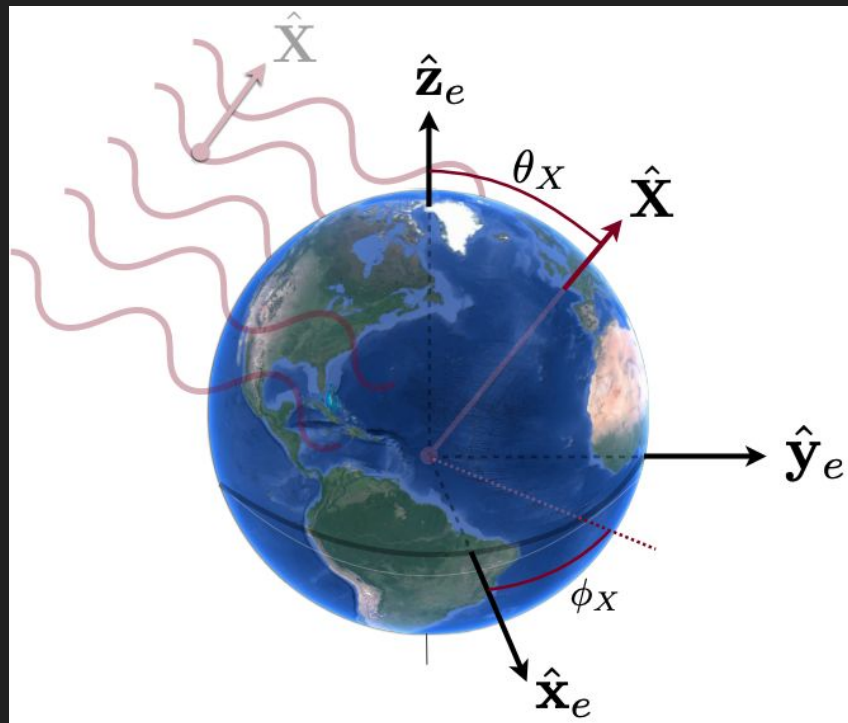


# Dark photons

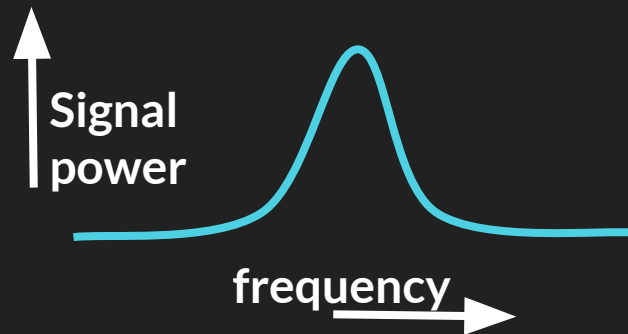
- Dark matter candidate
- Detectable with HAYSTAC
- Huge parameter space
- Vector field



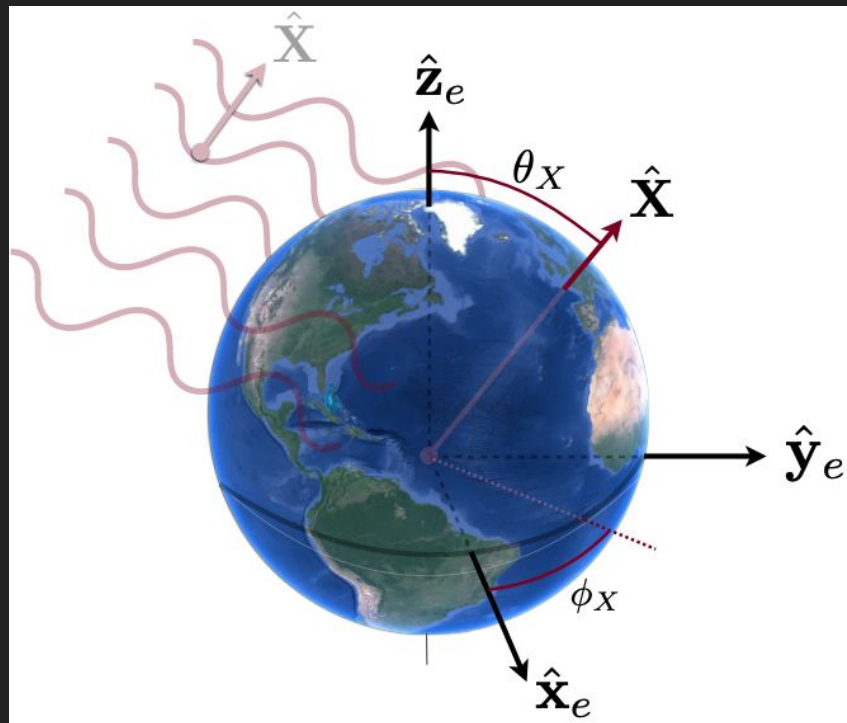
# Quantum squeezing = broadband measurements



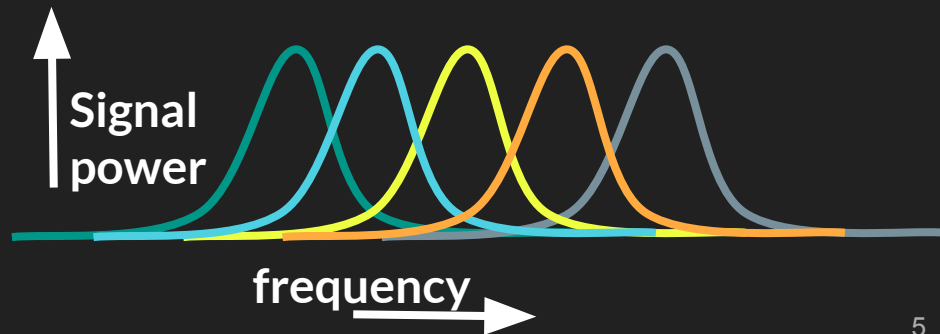
- Cavities are only sensitive to components along their axis
- Broadband allows longer integration times for both sensitivity measurements and rotation of the earth



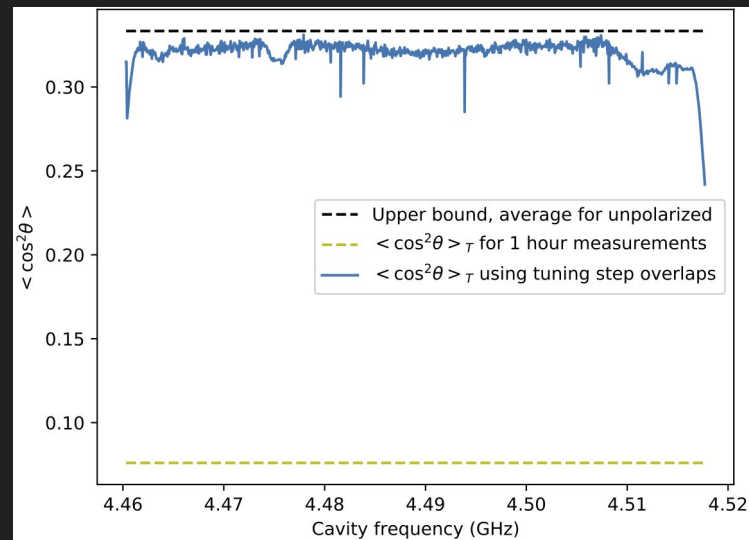
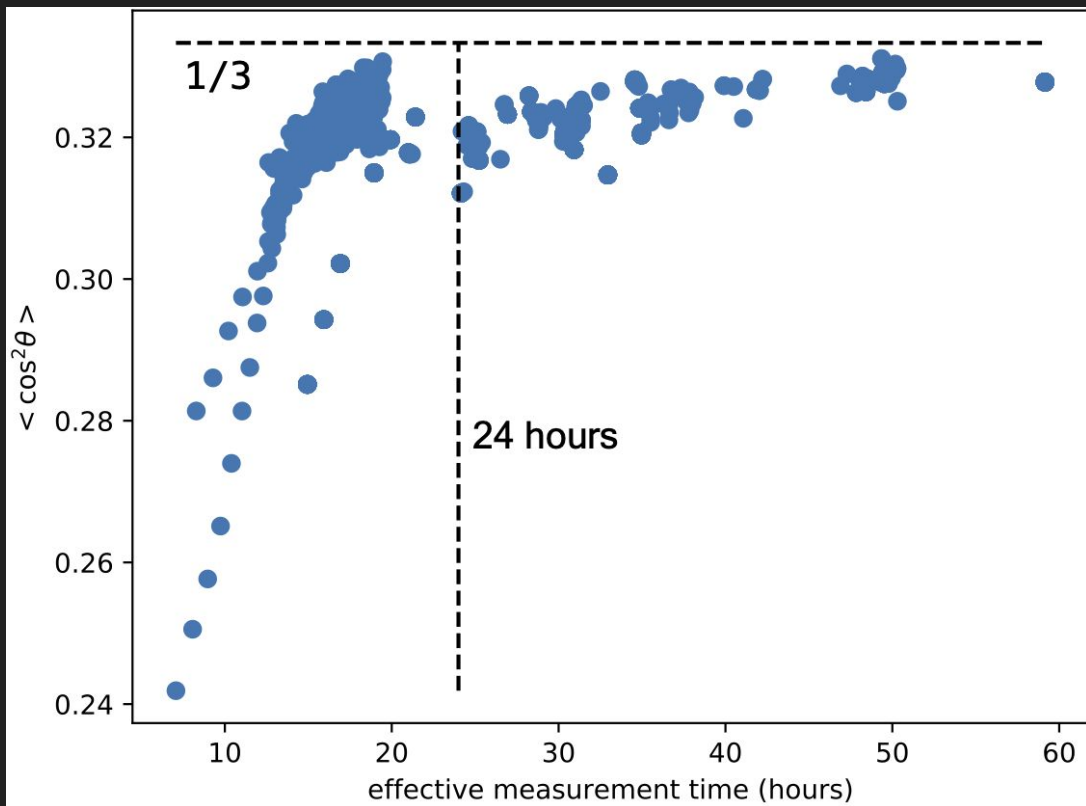
# Quantum squeezing = broadband measurements



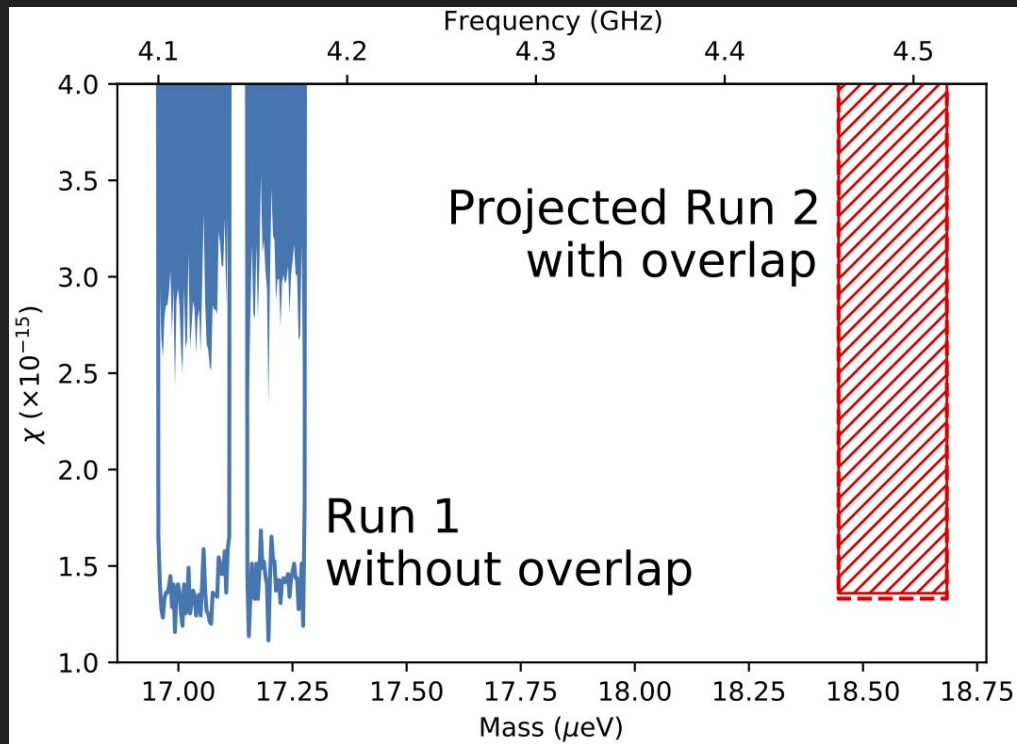
- Cavities are only sensitive to components along their axis
- Broadband allows longer integration times for both sensitivity measurements and rotation of the earth



# Longer integration times + rotation with the earth



# Results!





# Questions?

