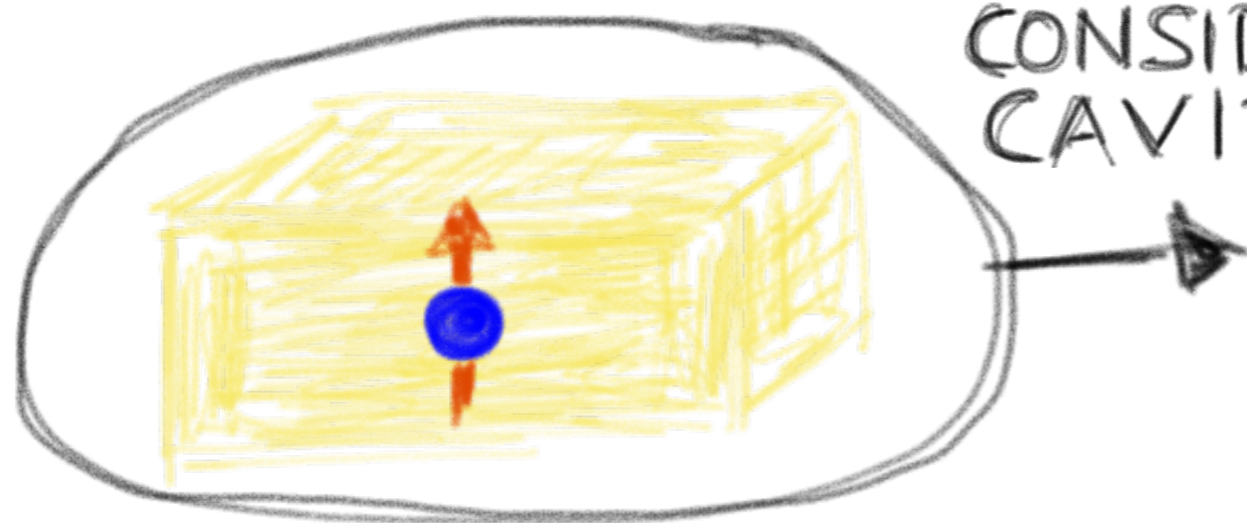


SYSTEM UNDER UNIFORM ACCELERATION



CONSIDER CO-ACCELERATING
CAVITY AND DETECTOR

SOLUTIONS TO KGE
FOR MASSLESS FIELD

$$F_{\Omega_k, m=0}(\chi) = \frac{1}{\sqrt{k\pi}} \sin(\Omega_k (\xi - \xi_l))$$

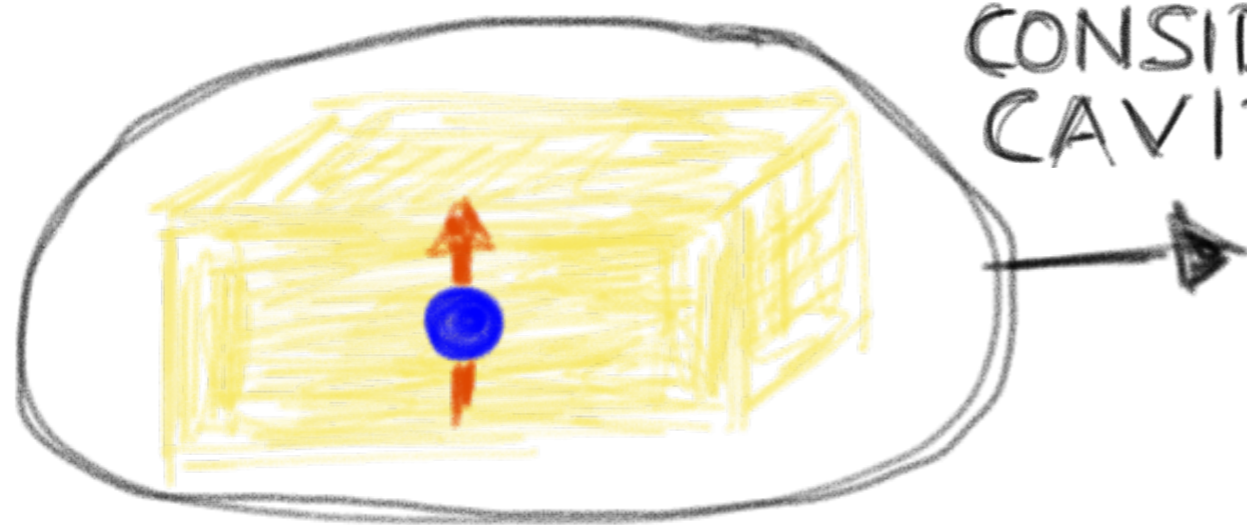
$$\Omega_k = \frac{k\pi}{L}$$

$$\xi = \frac{1}{a} \log(a\chi)$$

TOTAL PROBABILITY

$$\mathcal{P}_{acc}(a) \propto \sin^2 \left(a \log \left(1 - \frac{aL}{2} \right) \right)$$

SYSTEM UNDER UNIFORM ACCELERATION

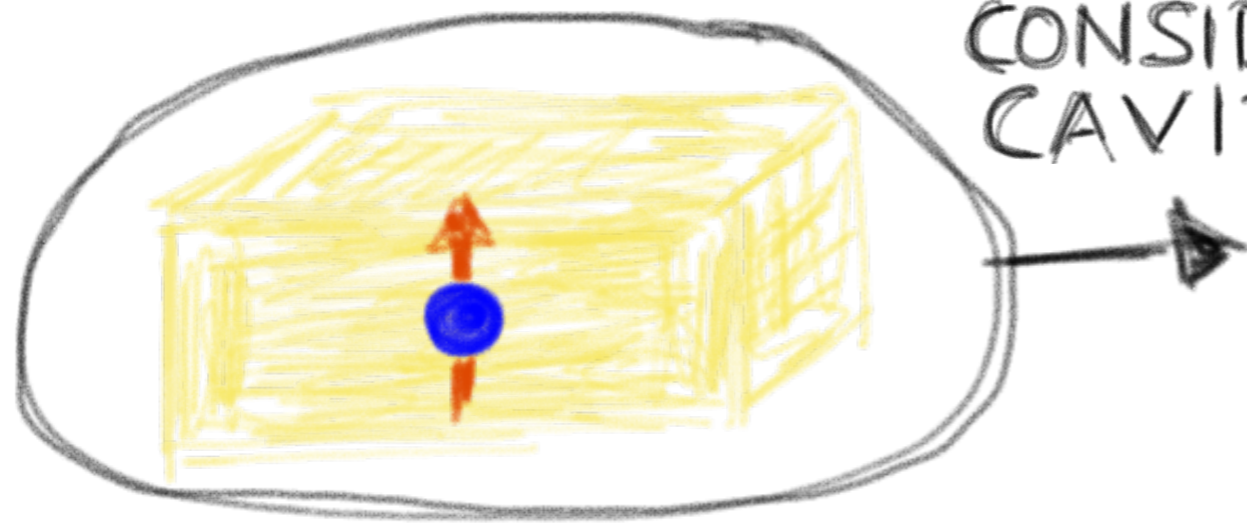


CONSIDER CO-ACCELERATING
CAVITY AND DETECTOR

SOLUTIONS FOR MASSIVE FIELD
ARE NOW IN TERMS OF
BESSEL FUNCTIONS OF IMAGINARY ORDER

$$F_{\Omega_k}(\chi) = N_k \left(I_{i\frac{\Omega_k}{a}}(m\chi) I_{-i\frac{\Omega_k}{a}}(m\chi_2) + \right. \\ \left. - I_{-i\frac{\Omega_k}{a}}(m\chi) I_{i\frac{\Omega_k}{a}}(m\chi_2) \right),$$

SYSTEM UNDER UNIFORM ACCELERATION

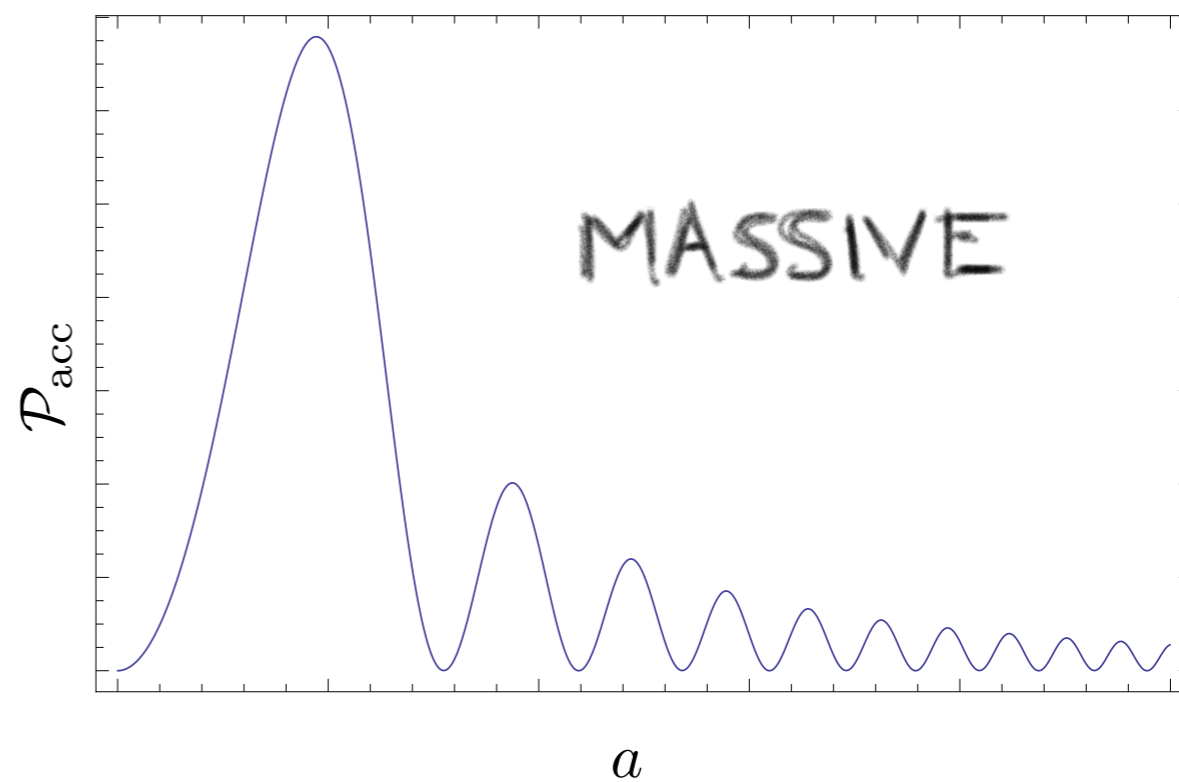
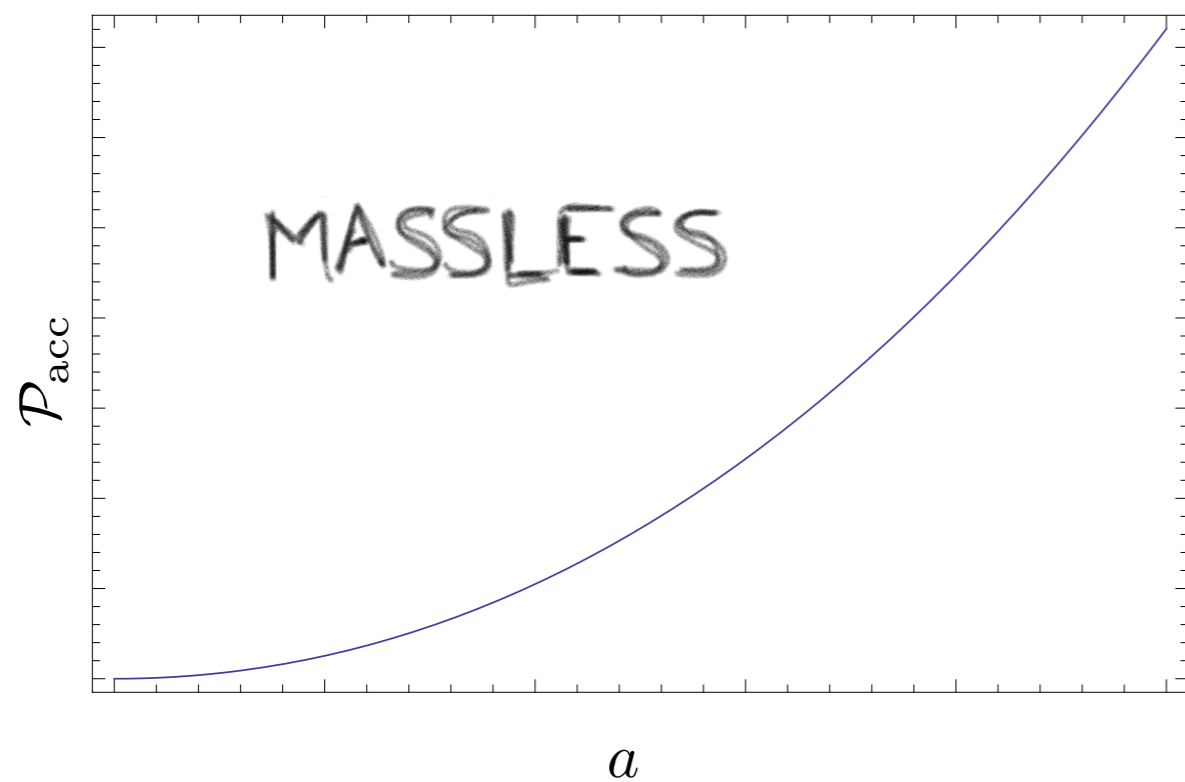


CONSIDER CO-ACCELERATING
CAVITY AND DETECTOR

TOTAL PROBABILITY

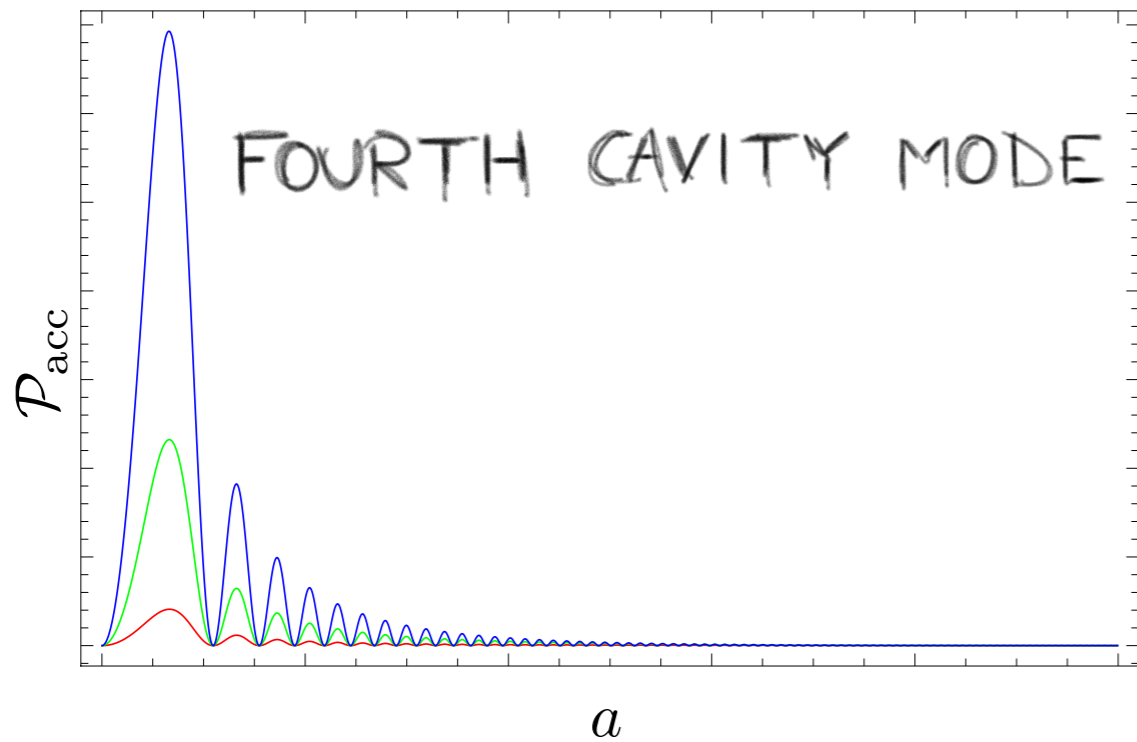
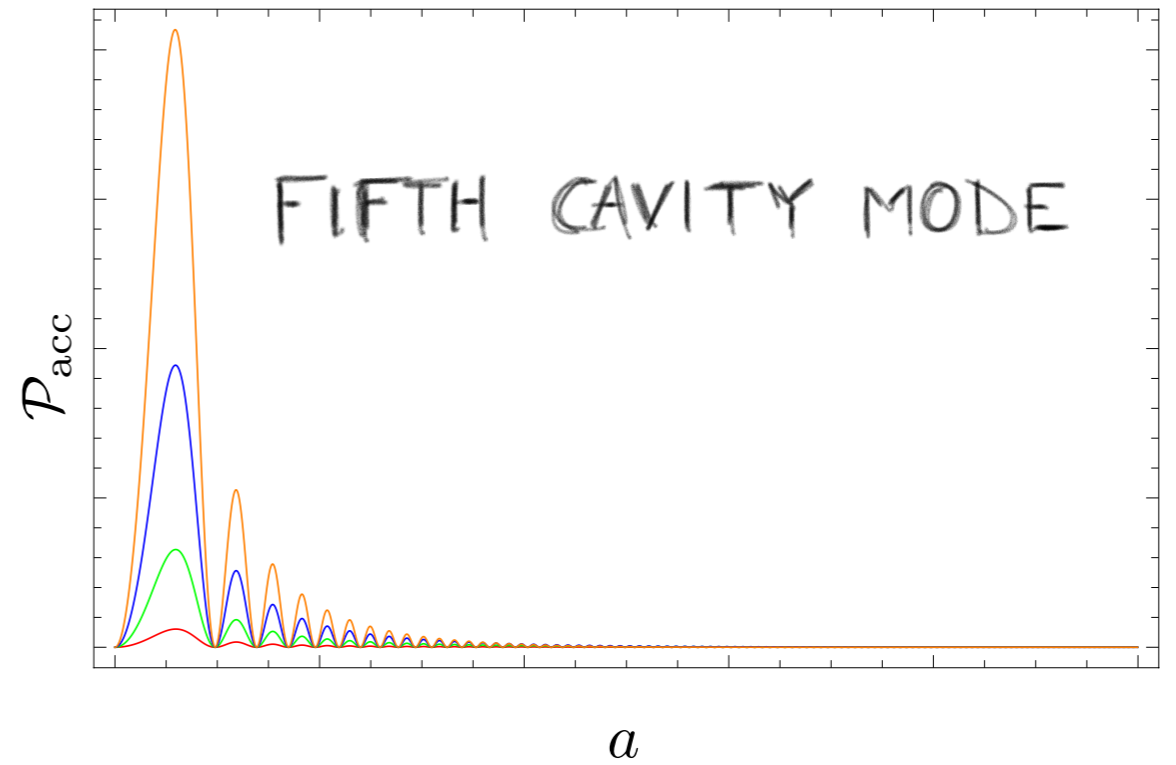
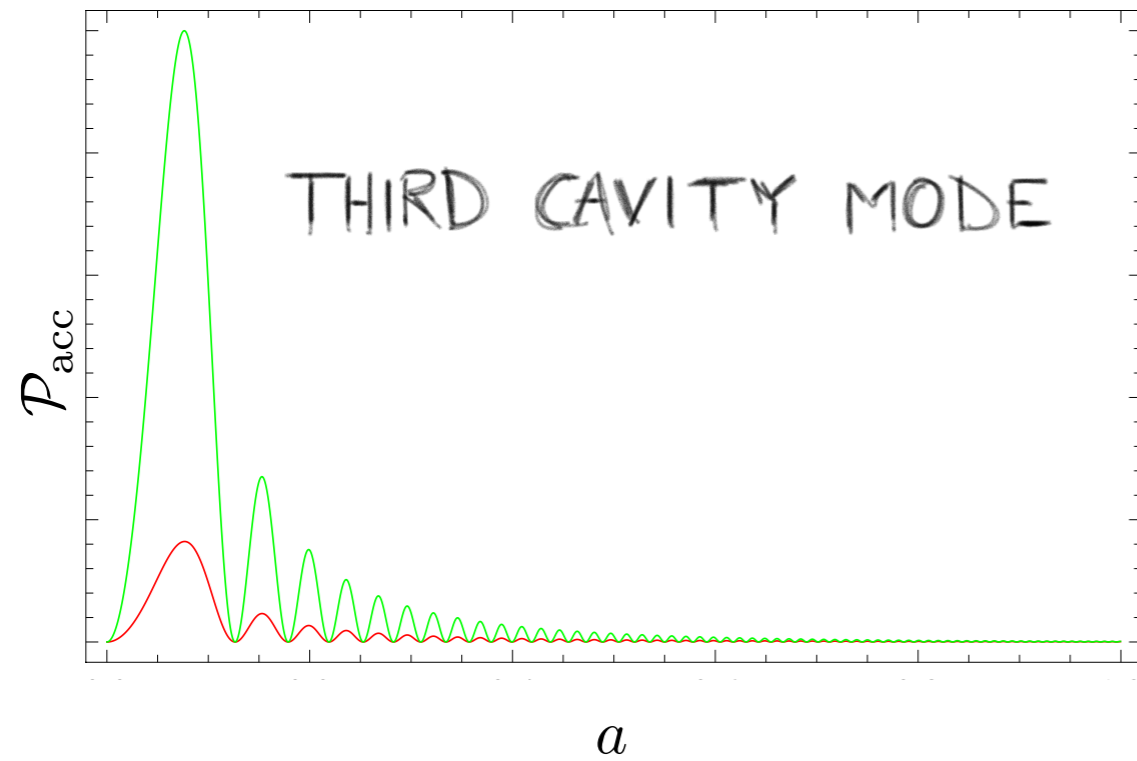
$$\mathcal{P}_{\text{acc}} = \sum_k \left| \frac{\epsilon}{\Omega_k - \omega_2} N_k \left(I_{i\frac{\Omega_k}{a}} \left(m\frac{1}{a} \right) I_{-i\frac{\Omega_k}{a}} (m\chi_2) - I_{-i\frac{\Omega_k}{a}} \left(m\frac{1}{a} \right) I_{i\frac{\Omega_k}{a}} (m\chi_2) \right) \left(e^{i(\Omega_k - \omega_2)\tau} - 1 \right) \right|^2$$

SYSTEM UNDER UNIFORM ACCELERATION



SECOND CAVITY MODE

SYSTEM UNDER UNIFORM ACCELERATION



EFFECT IS MORE PRONOUNCED
AT FRONT OF CAVITY

WHAT DOES
THIS MEAN?!

WHAT DOES
THIS MEAN?!

QUANTUM
ACCELEROMETER

WHAT DOES
THIS MEAN?!

QUANTUM
ACCELEROMETER

EXPERIMENT: HOW COULD WE BUILD ONE?

どうもありがとうございます