SYSTEM AT REST

CONSIDER A DETECTOR AT REST

SOLUTIONS TO KGE
WITH DIRICHLET BCS

$$\hat{\phi}(t,x) = \sum_{k=1}^{\infty} F_k(x) \left(e^{-i\omega_k t} \hat{a}_k + e^{i\omega_k t} \hat{a}_k^\dagger \right)$$

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EIGENMODES OF CAVITY

$$\begin{cases} F_k(x) = \frac{1}{\sqrt{k\pi}} \sin\left(k\pi \frac{x+\frac{L}{2}}{L} \right) \\ \\ \omega_k = \sqrt{\left(\frac{k\pi}{L}\right)^2 + m^2}. \end{cases}$$

SYSTEM AT REST

SECOND CAVITY MODE
POSITION OF DETECTOR

$$x_0 = 0$$

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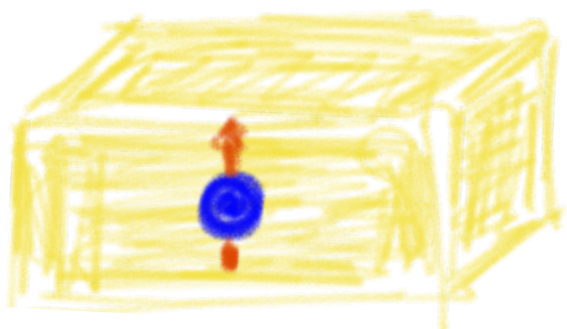
TOTAL PROBABILITY

$$\mathcal{P} = \sum_{k=1}^{\infty} \left| \int \mathrm{d}\tau \epsilon(\tau) F_k \left(x(\tau) \right) e^{-i(\omega\tau - \omega_k t(\tau))} \right|^2 .$$

SYSTEM AT REST



SECOND CAVITY MODE
POSITION OF DETECTOR

$$x_0 = 0$$

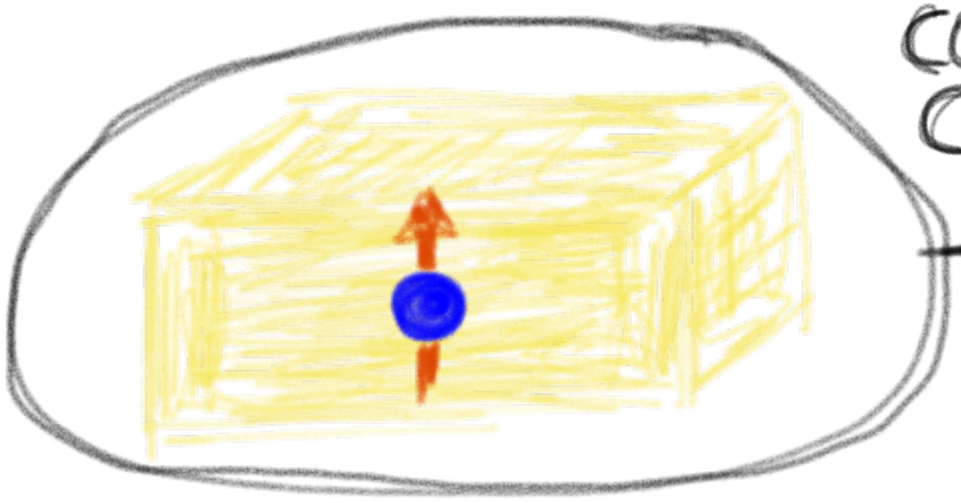
TOTAL PROBABILITY

$$\mathcal{P} = \sum_{k=1}^{\infty} \left| \int \mathrm{d}\tau \epsilon(\tau) F_k \left(x(\tau) \right) e^{-i(\omega\tau - \omega_k t(\tau))} \right|^2 .$$

$$\mathcal{P}_{\mathrm{rest}} = \left| \tau \frac{\epsilon}{\sqrt{2\pi}} \sin\left(2\pi \frac{x_0 + \frac{L}{2}}{L} \right) \right|^2$$

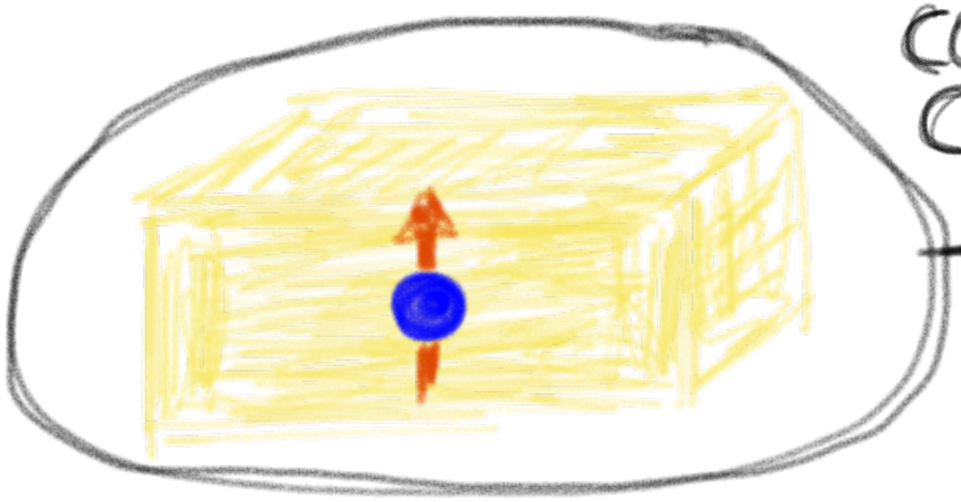
$$+ \sum_{k \neq 2} \left| \frac{\epsilon}{\omega_k - \omega_2} \frac{1}{\sqrt{k\pi}} \sin\left(k\pi \frac{x_0 + \frac{L}{2}}{L} \right) \left(e^{-i(\omega_2 - \omega_k)\tau} - 1 \right) \right|^2$$

SYSTEM UNDER UNIFORM ACCELERATION



CONSIDER CO-ACCELERATING CAVITY AND DETECTER

SYSTEM UNDER UNIFORM ACCELERATION



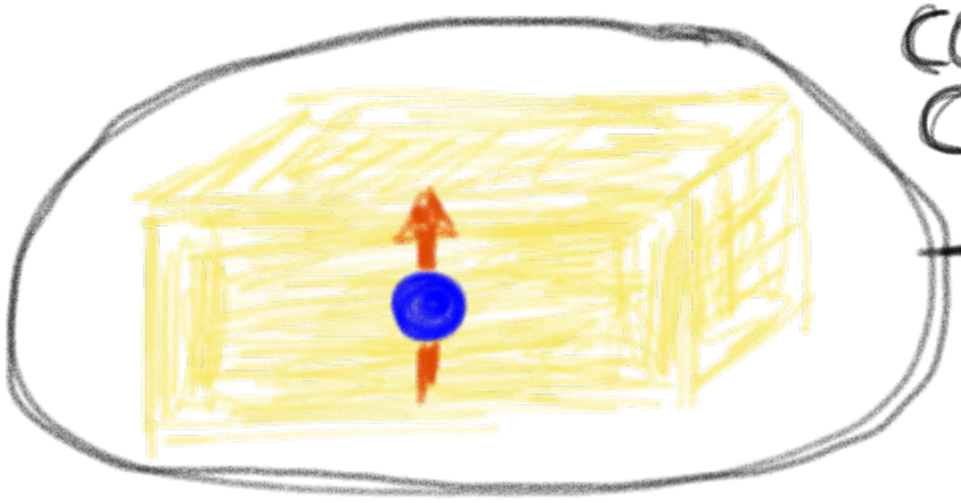
CONSIDER CO-ACCELERATING CAVITY AND DETECTER

KGE IN RINDLER COORDINATES

$$\left(\frac{1}{a^2\chi^2}\partial_\tau^2 - \partial_\chi^2 - \frac{1}{\chi}\partial_\chi + m^2\right)\hat{\phi} = 0$$

$$\begin{cases} \tau = \frac{1}{a}\text{atanh}\left(\frac{t}{x}\right) \\ \\ \chi = \sqrt{x^2 - t^2}, \end{cases}$$

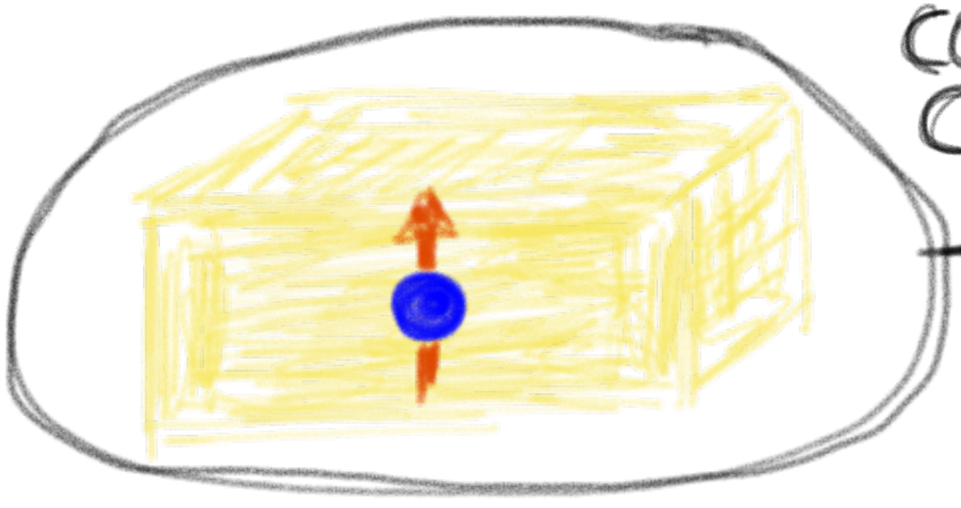
SYSTEM UNDER UNIFORM ACCELERATION



CONSIDER CO-ACCELERATING CAVITY AND DETECTER

REFERENCE TRAJECTORY CENTER OF CAVITY SUCH THAT WHEN L IS MUCH SHORTER THAN a^{-1} THEN a IS PROPER ACCELERATION

SYSTEM UNDER UNIFORM ACCELERATION



CONSIDER CO-ACCELERATING CAVITY AND DETECTER

SOLUTIONS TO KGE FOR MASSLESS FIELD

$$\begin{cases} F_{\Omega_k,\ m=0}(\chi) = \frac{1}{\sqrt{k\pi}} \sin\left(\Omega_k \left(\xi - \xi_l\right)\right) \\ \\ \Omega_k = \frac{k\pi}{L} \\ \\ \xi = \frac{1}{a} \log(a\chi) \end{cases}$$