Is gravity quantized? (max 10' Foreword)

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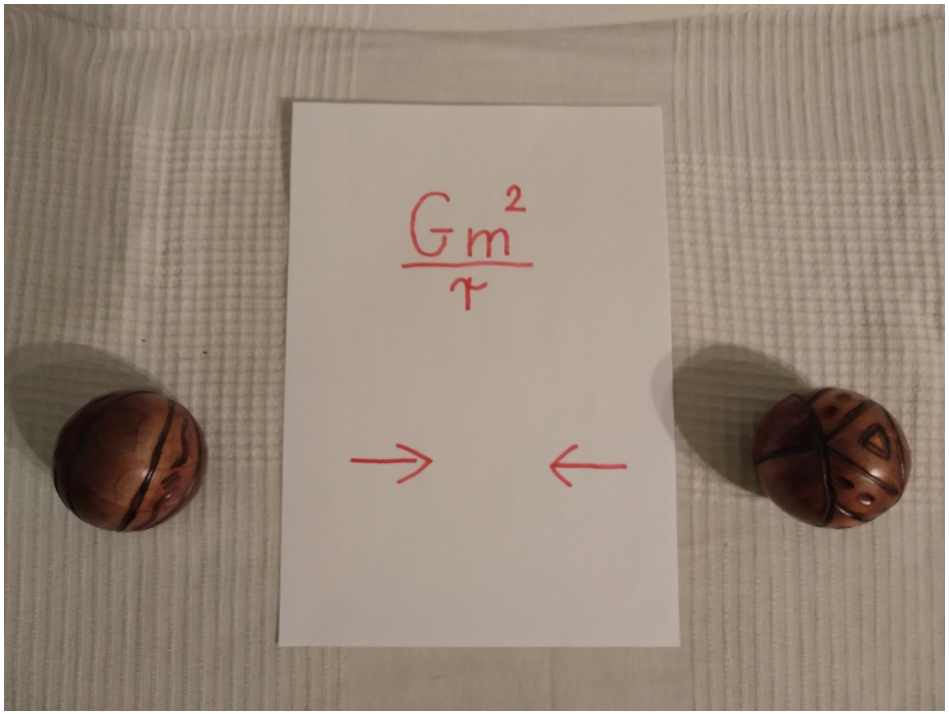


MATTER IS QUANTIZED

$\psi(x_1)$ $\psi(x_2)$

NO EXPERIMEMENTS!

THEORY?

THEORIES:

$$\hat{V} = -Gm^2 \begin{cases} \dfrac{1}{|\hat{x}_1 - \hat{x}_2|} & \text{Pair Potential can entangle} \\ \dfrac{1}{|\hat{x}_1 - \langle \hat{x}_2 \rangle|} + \dfrac{1}{|\hat{x}_2 - \langle \hat{x}_1 \rangle|} & \text{Semiclassical cannot entangle} \\ \dfrac{1}{|\hat{x}_1 - \langle \hat{x}_2 \rangle - \delta x_2|} + \dfrac{1}{|\hat{x}_2 - \langle \hat{x}_1 \rangle - \delta x_1|} & \text{Spontaneous Collapse cannot entangle} \end{cases}$$

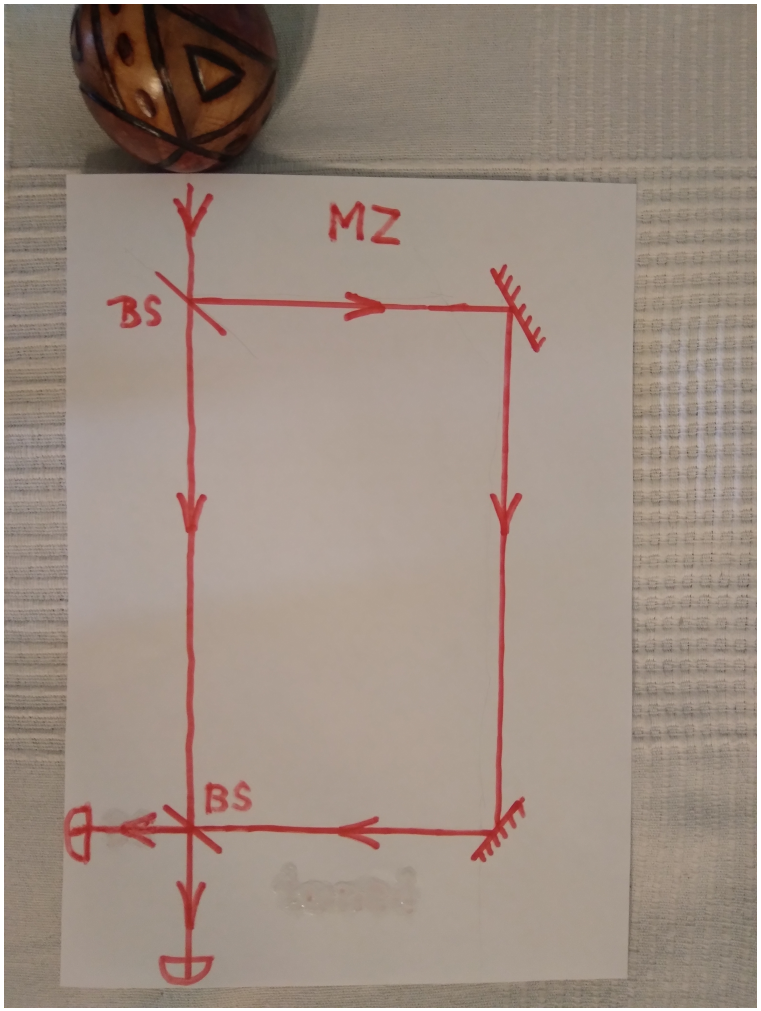
stochastic stochastic

If entangles, gravity cannot be classical but quantized.
If doesn't entangle, gravity can be classical.

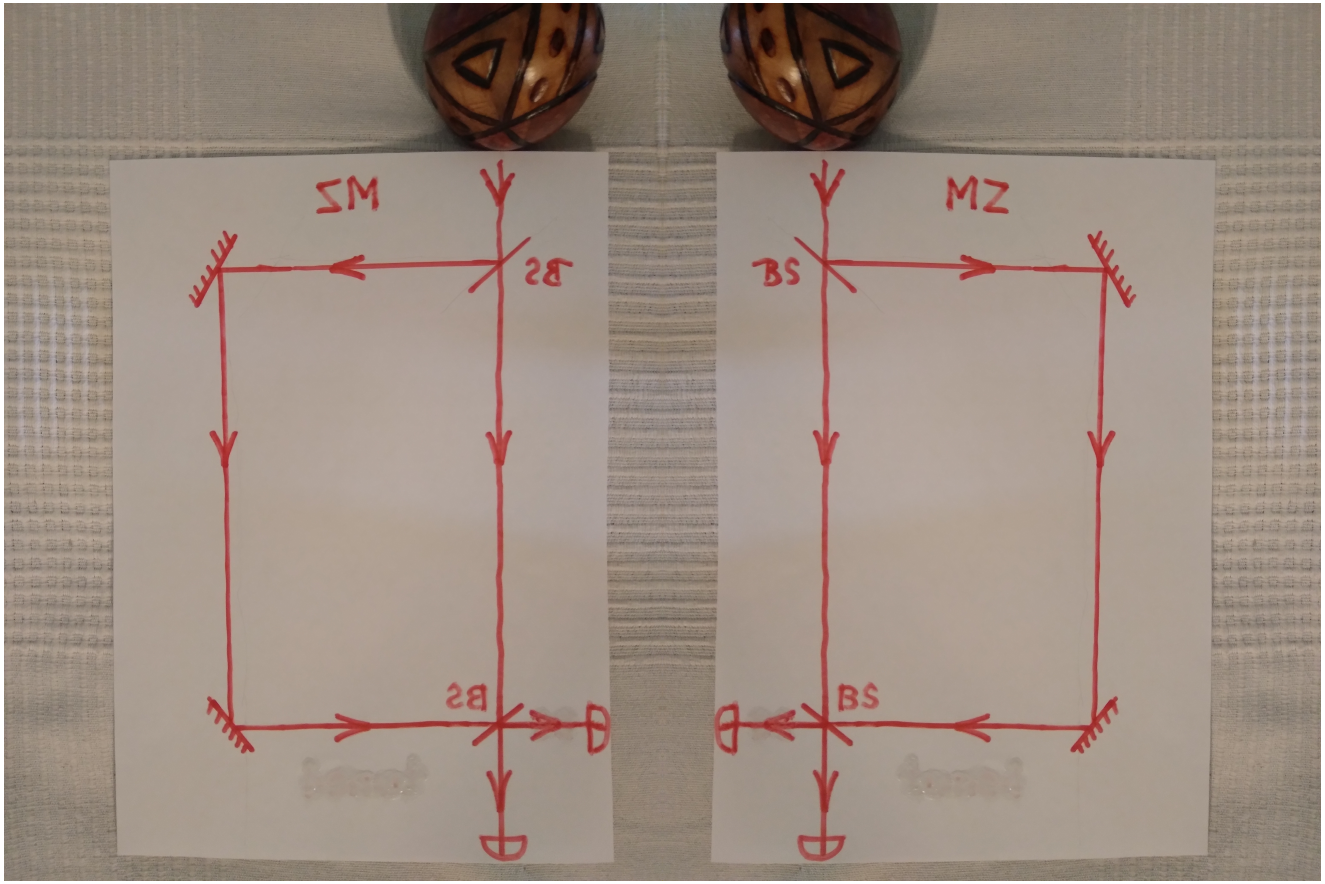
SPONTANEOUS COLLAPSE ("measurement")

+

CLASSICAL COMMUNICATION



MACH–ZENDER INTERFEROMETER
2 DETECTORS, 2 OUTCOMES



$$-\frac{Gm^2}{|\hat{x}_1 - \hat{x}_2|}$$

EXPERIMENT
2x2 DETECTORS, 2x2 OUTCOMES, ENTANGLEMENT DETECTION