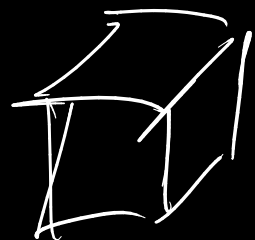
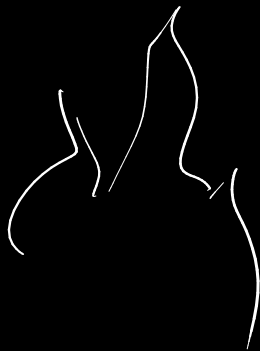
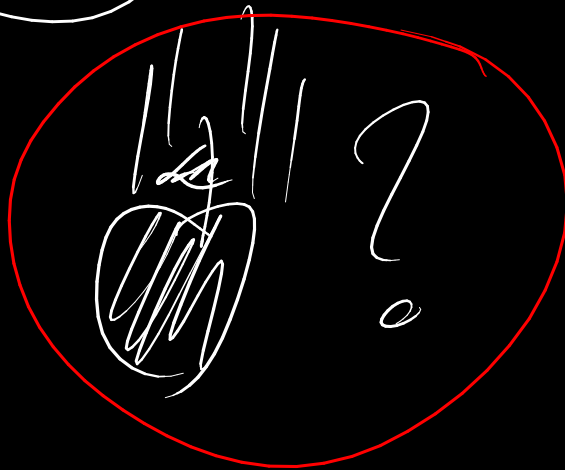
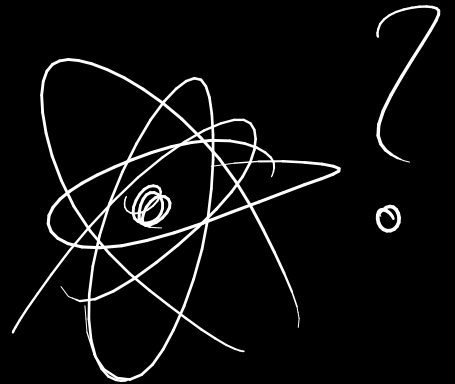
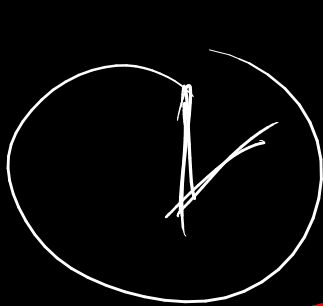


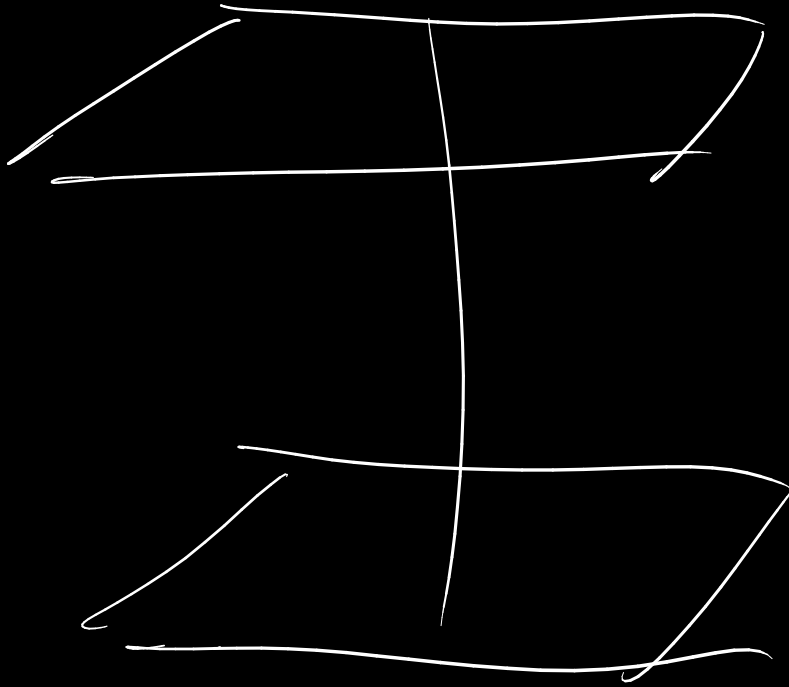
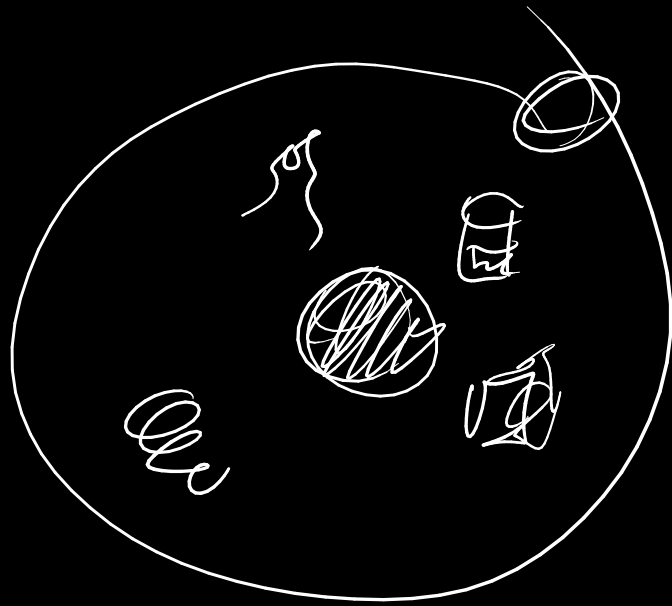
Por que as coisas

caem?

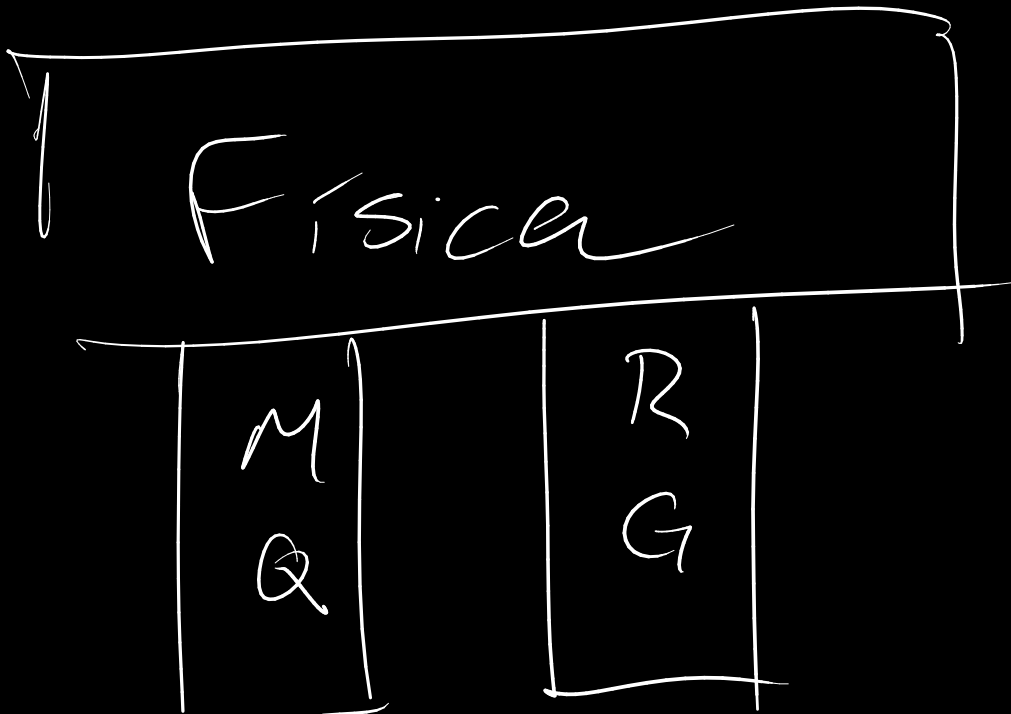


^ Recepção Tensorial 2022

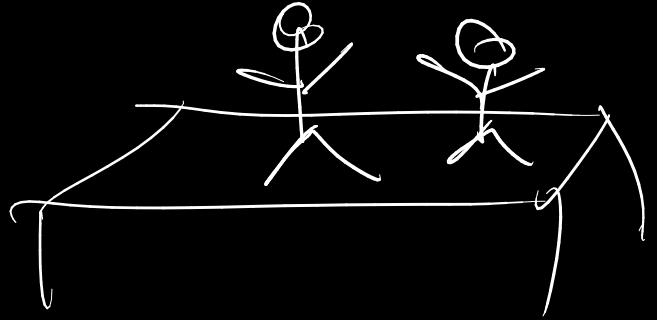
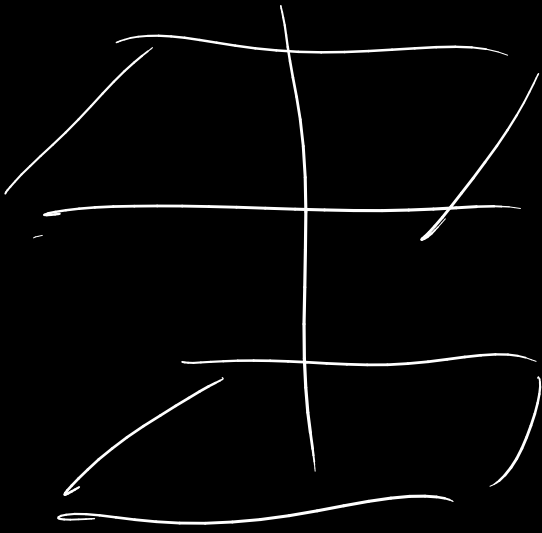




Russell



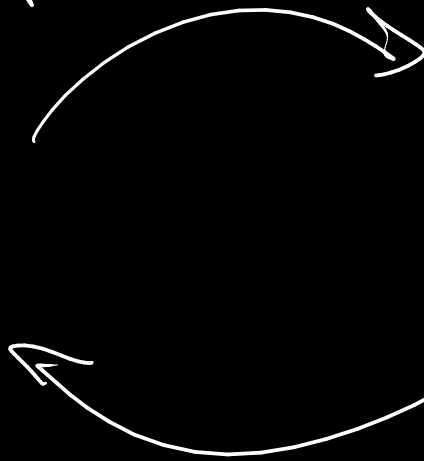
RG



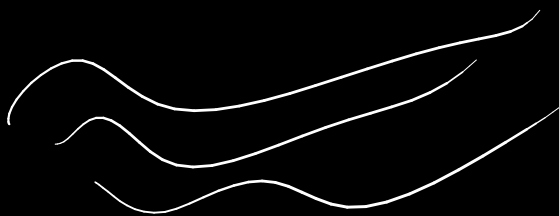
Wheeler

RG

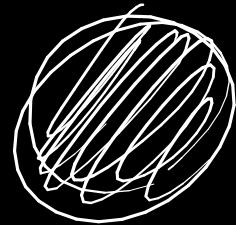
ET  
Cone  
se  
curvor



M  
Cone  
se  
nowr



LIGO



EHT

MQ

MC

-  $x, p$

estado

-  $f(x, p)$

observáveis

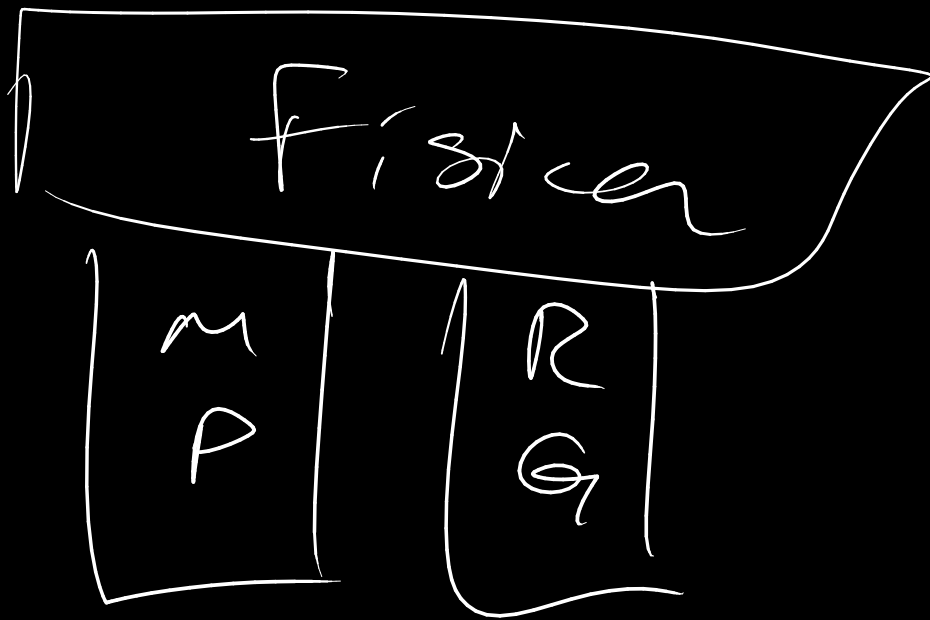
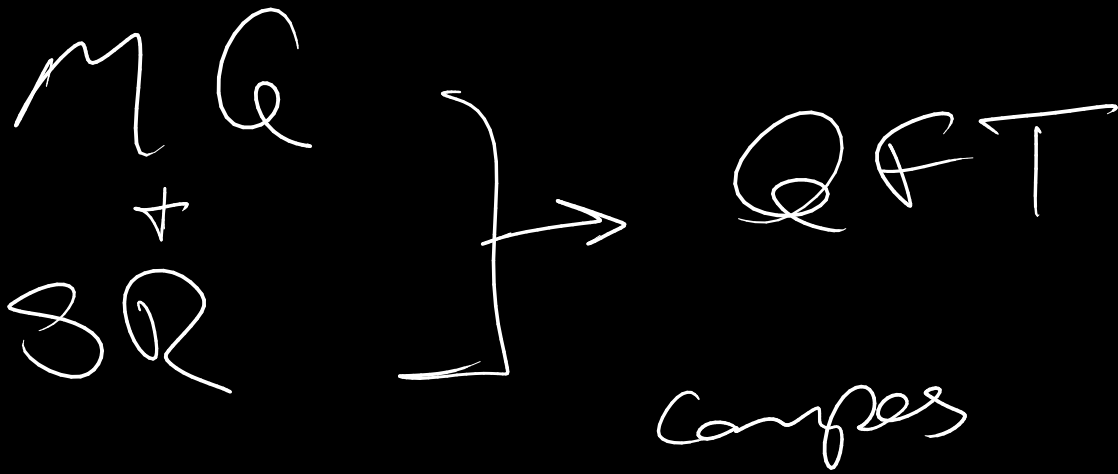
MQ

- vetores

- matrizes



# Modelo Padrão



# Teoría Eletivas

Aristoteles

$$\vec{F} = - \frac{GMm}{r^2} \hat{r}$$

$$l_p = \sqrt{\frac{\hbar G}{c^3}}$$

$$\sim 1.6 \cdot 10^{-35} \text{ m}$$

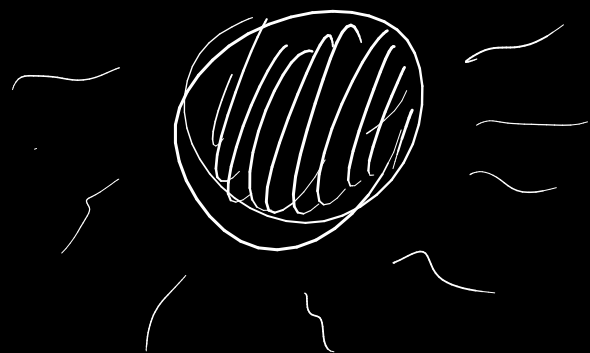
TQCEC

TQC ✓  
RR

MP

EC ✓ RG

# Steplen Hawking



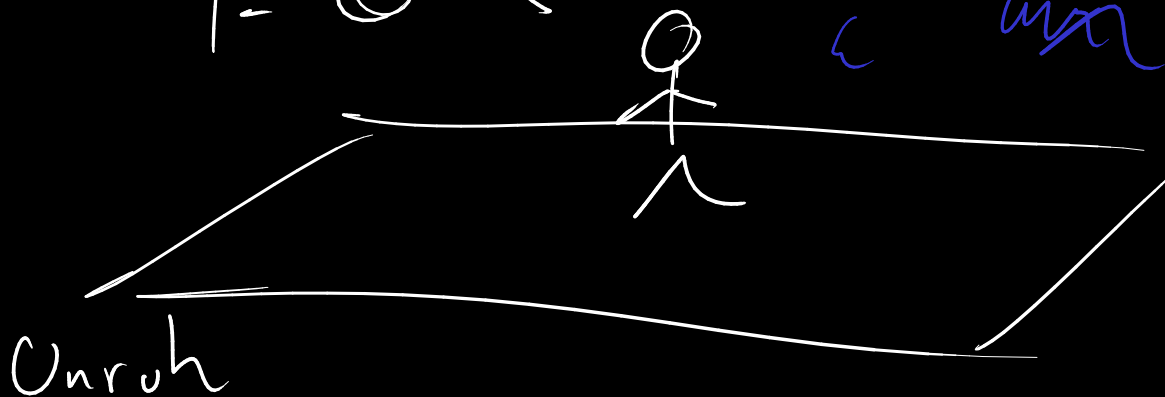
TQ Campos

$$T = 0 \text{ K}$$



$$T = \frac{a}{2\pi}$$

$a$   
 $a$   
 $a$



Unruh

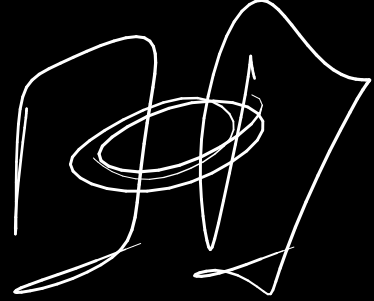
TQC EC

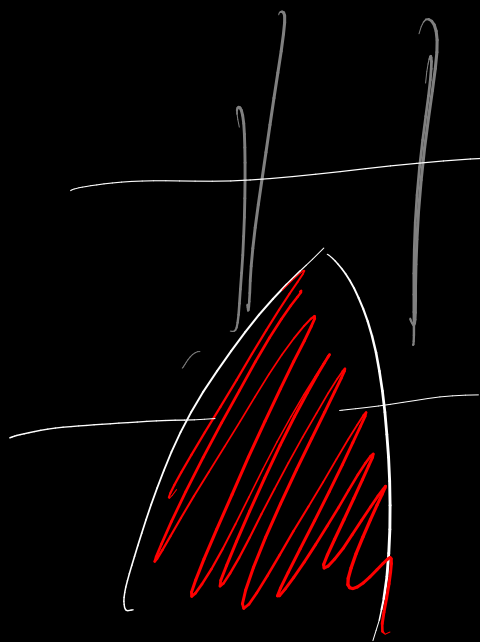
Gravitação Semiclássica



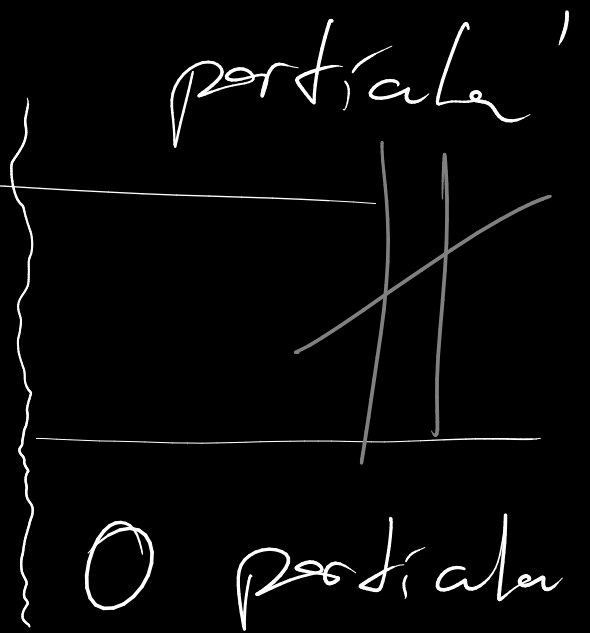
Por que as coisas  
caem?

↓ QCEC





—



TQC vs Strings

MQ

RR

QG

lp

QG

Bottom-up

TQCEC

RG+MQ



Top-down

Strings

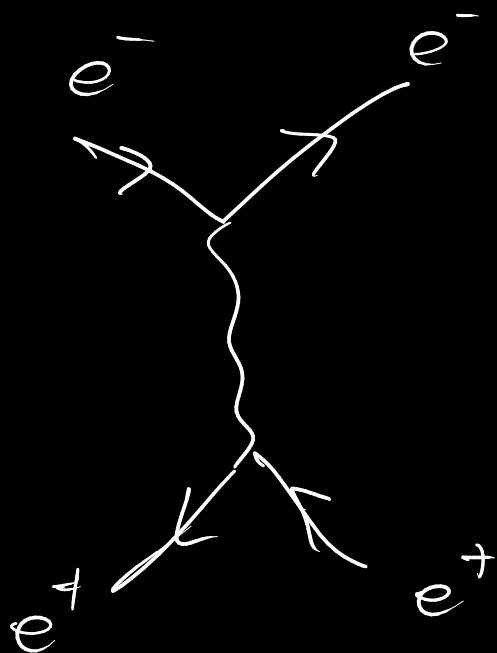
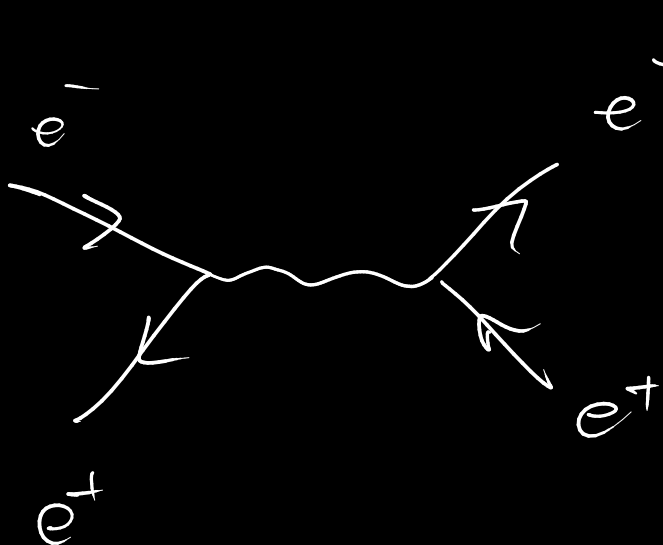
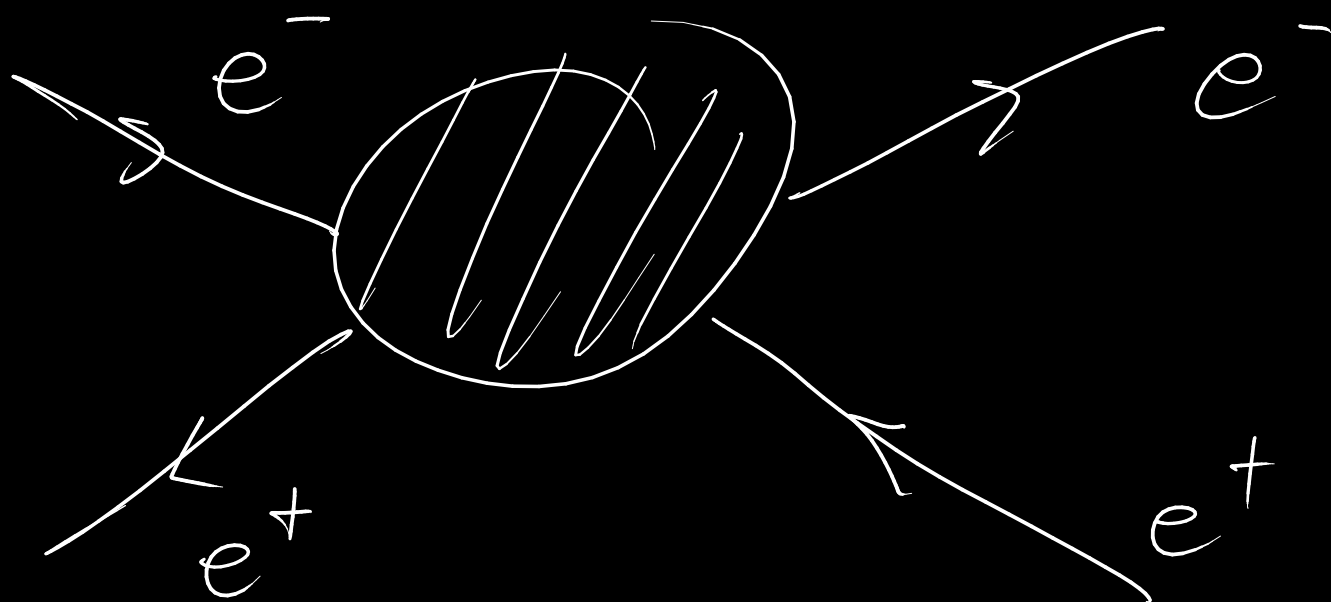
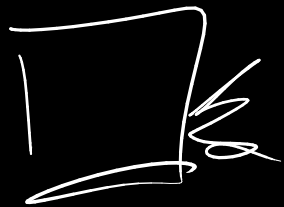
Loop



QG

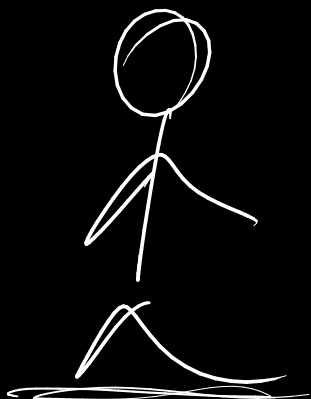
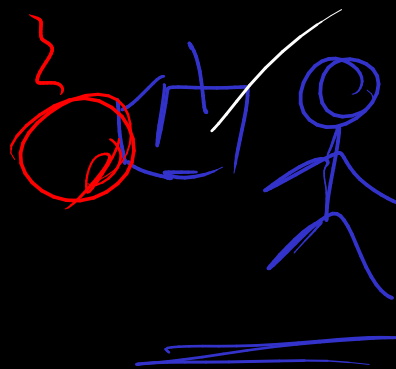
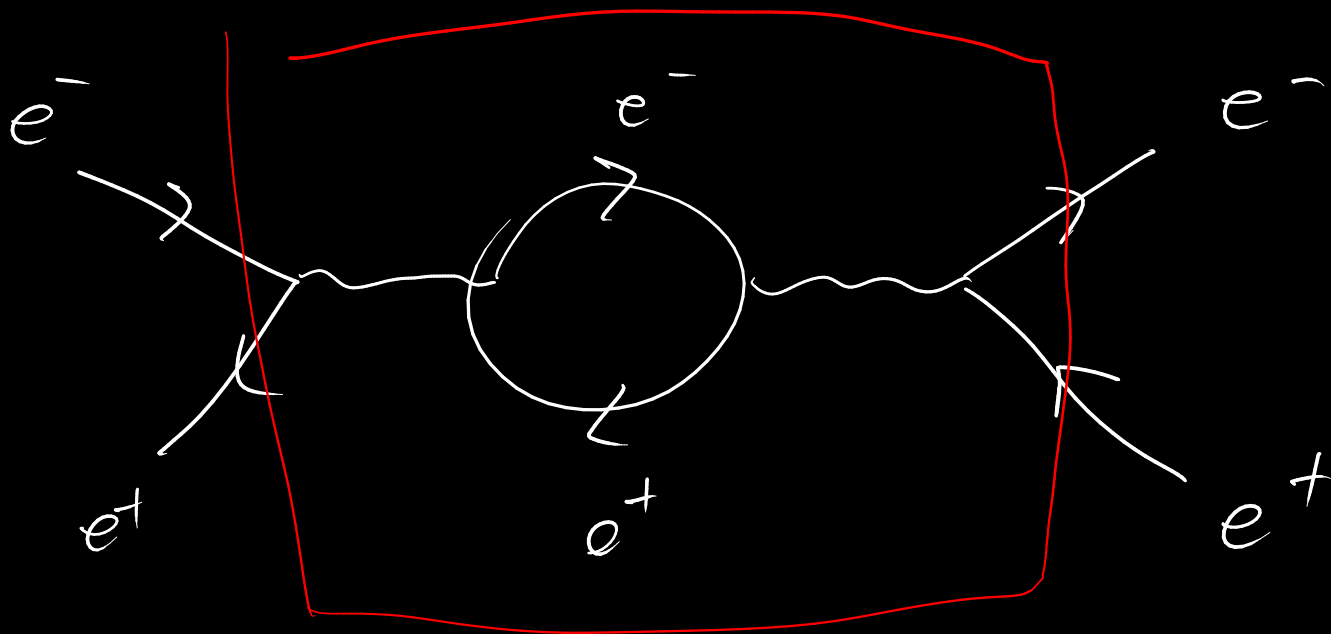


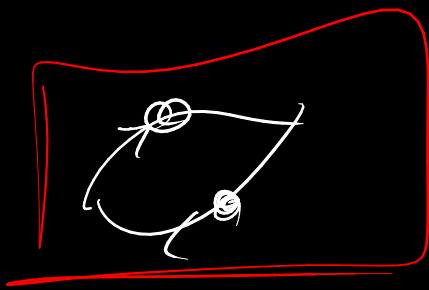
→ TQC



$e^- \longrightarrow e^-$

$e^+ \longleftarrow e^+$





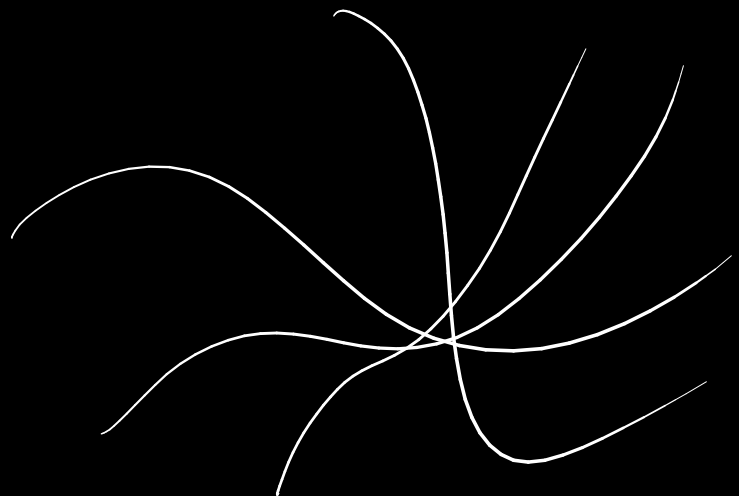
# Filosofia da Física

Feeman Dyson  
Scientific American

1953

Quantum Mechanics

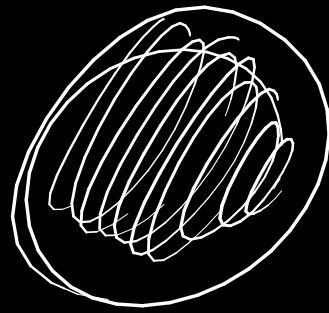
TQC



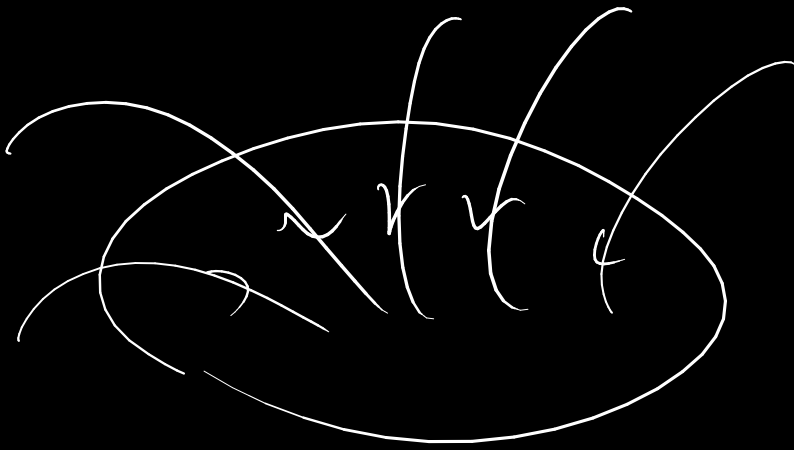


Ceci nest pas une pipe

Hawking



Fluides  $\Rightarrow$  espèce type



✓  
2019

Unruh

Landello, Matsen,

Ventrella, Cozzella

Unruh  $\Leftrightarrow$  EEM

Segunda arXiv

