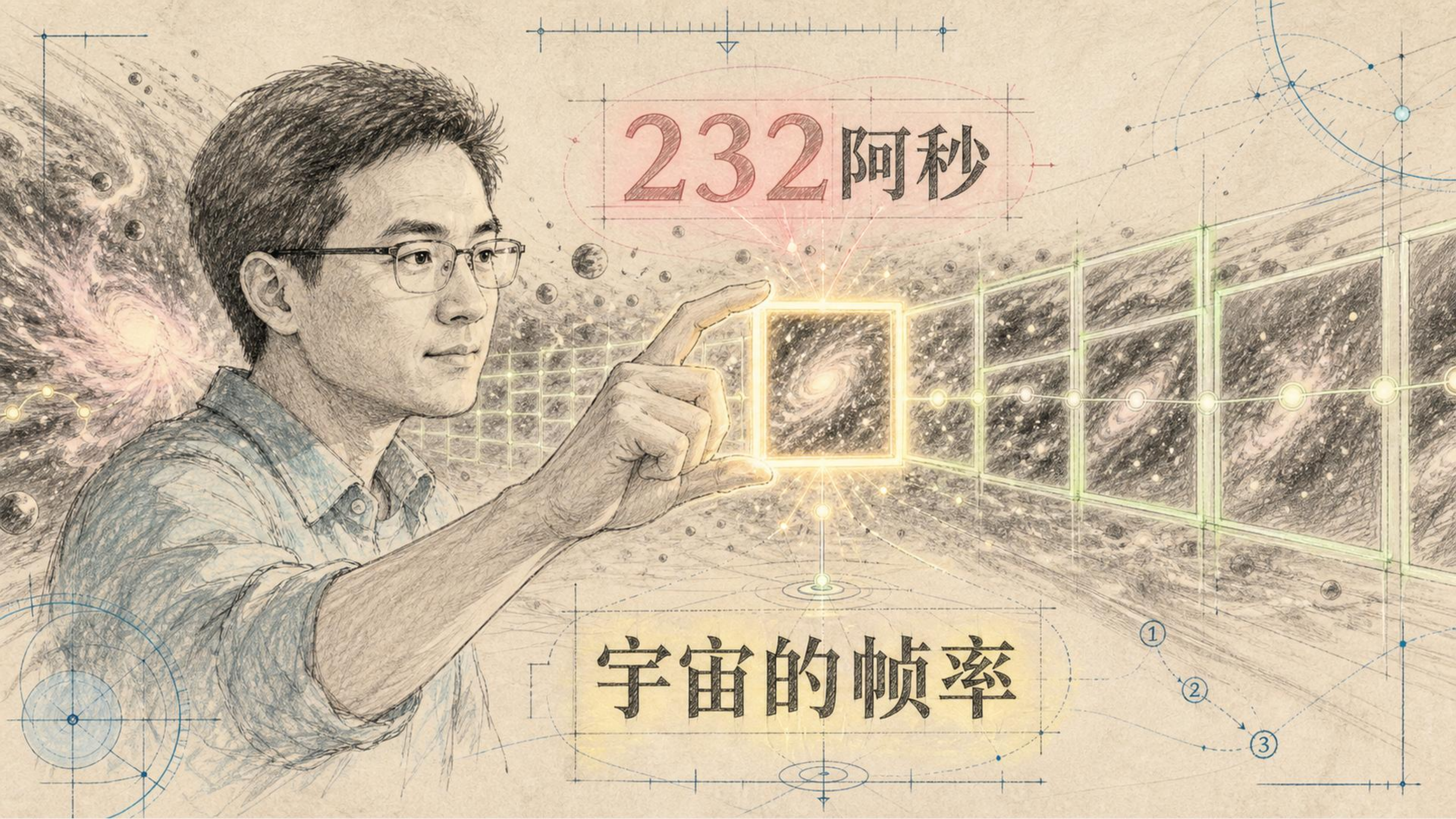


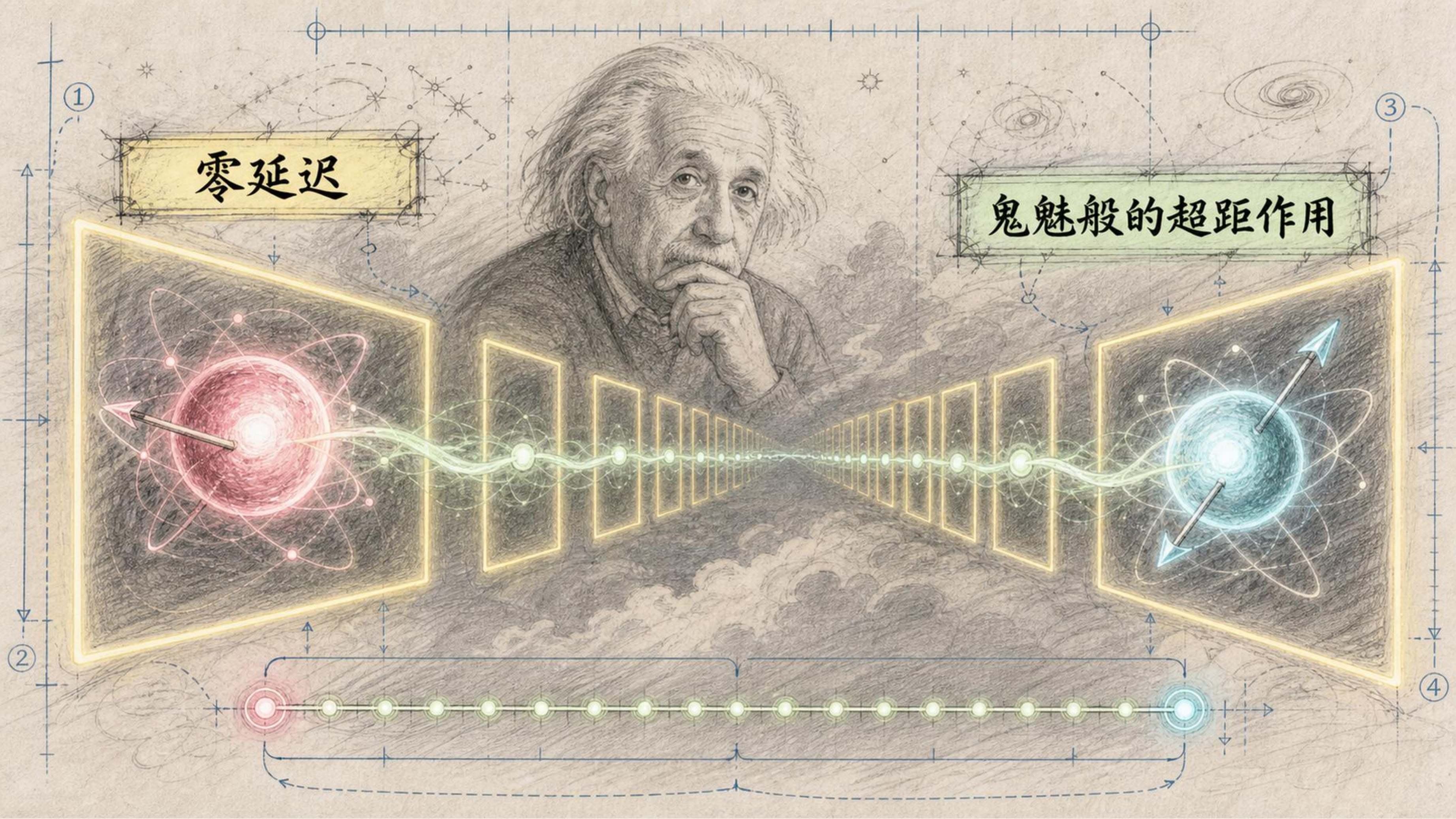
232阿秒

宇宙的帧率



①
零延迟

③
鬼魅般的超距作用



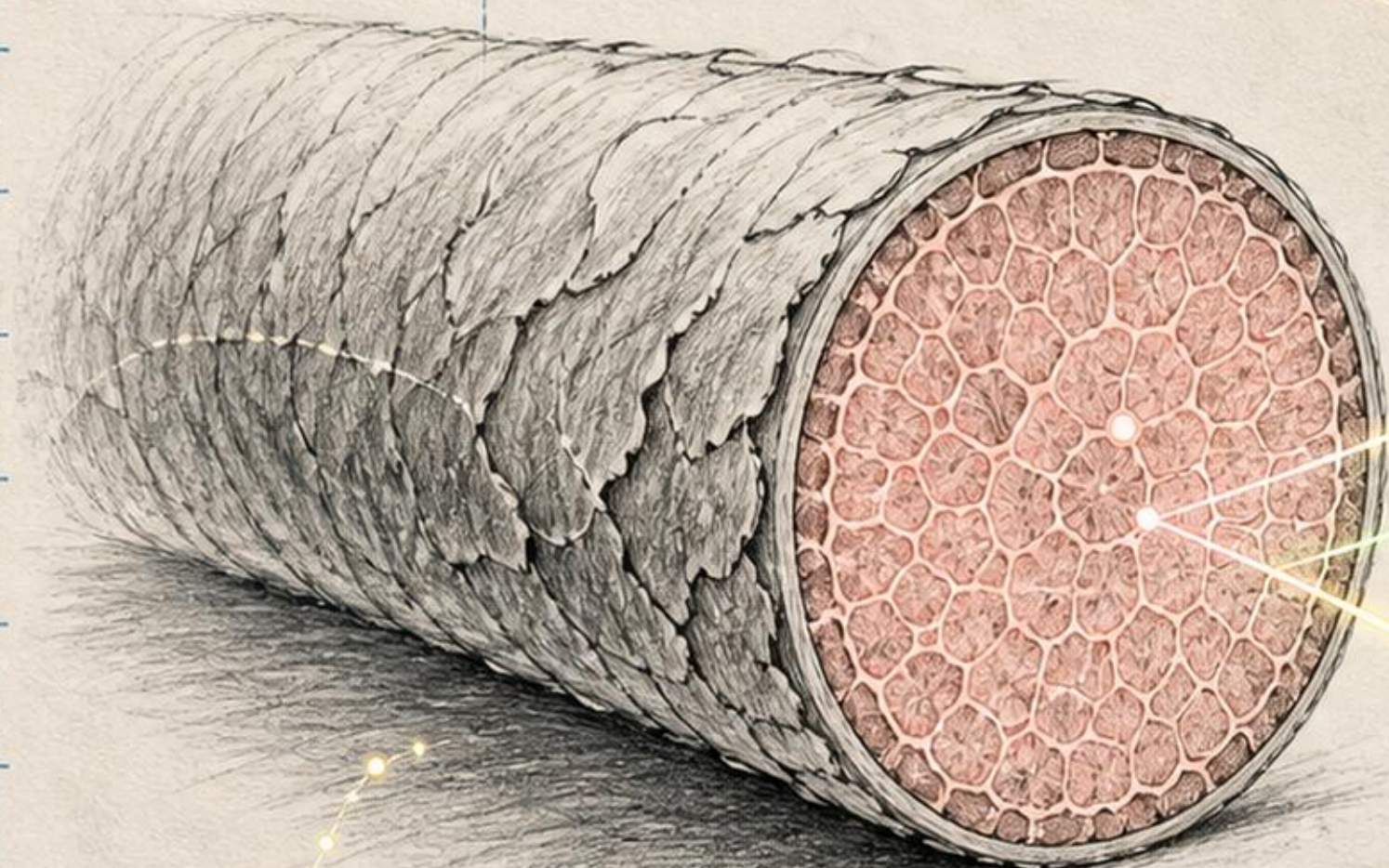
物理评论快报

232阿秒





我是王利杰



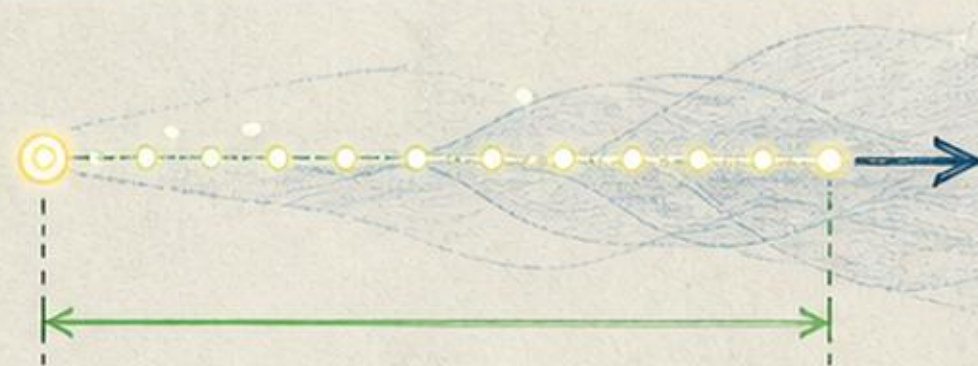
①



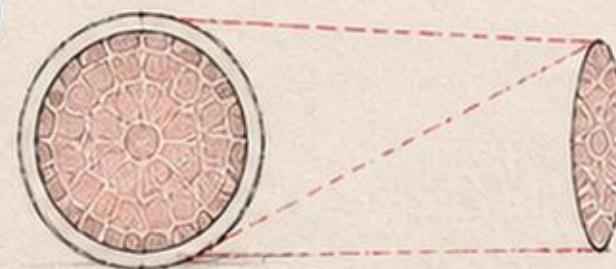
一百亿亿分之一秒

②

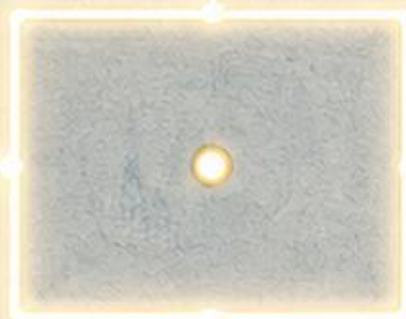
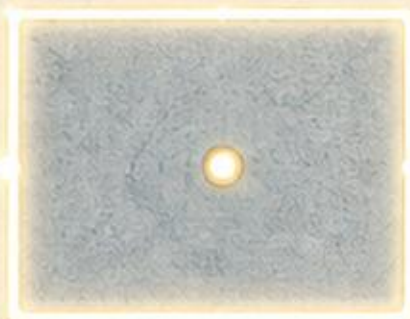
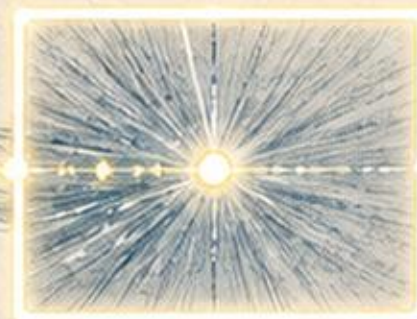
70纳米



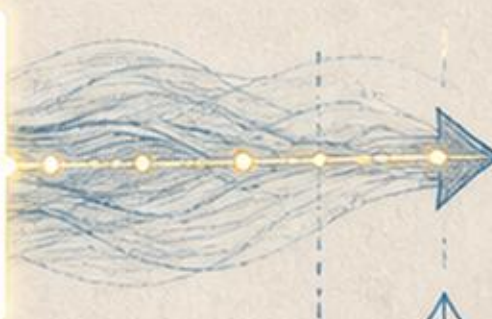
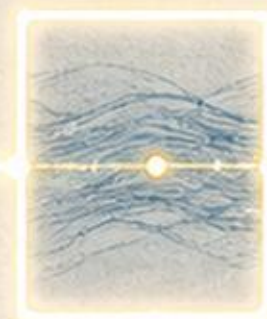
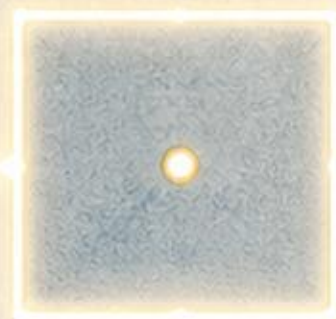
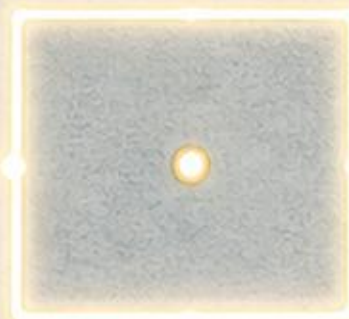
③



头发丝千分之一



...



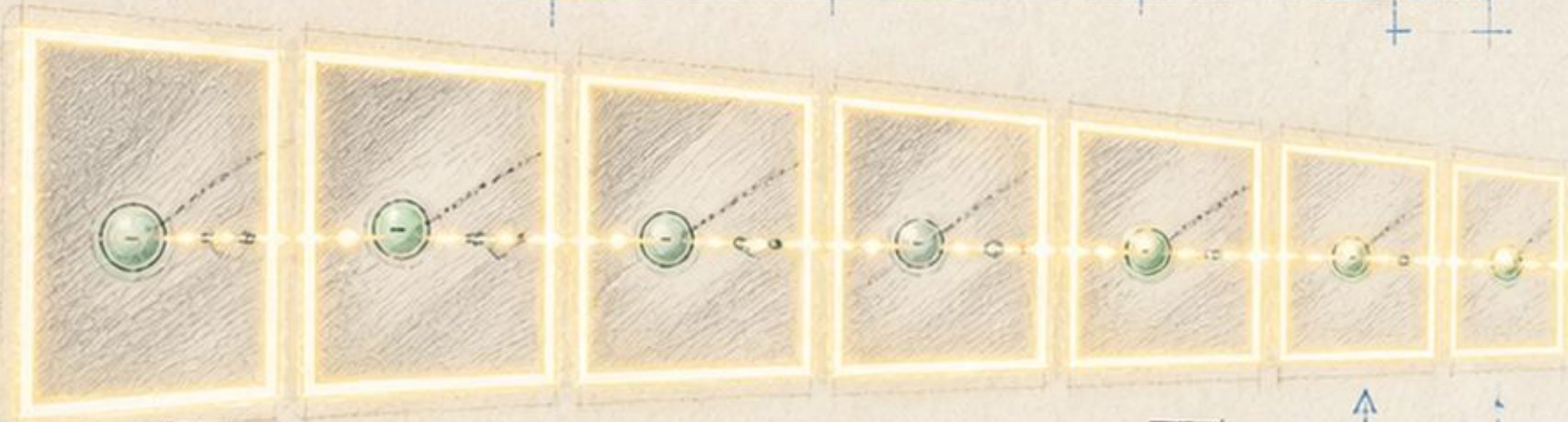
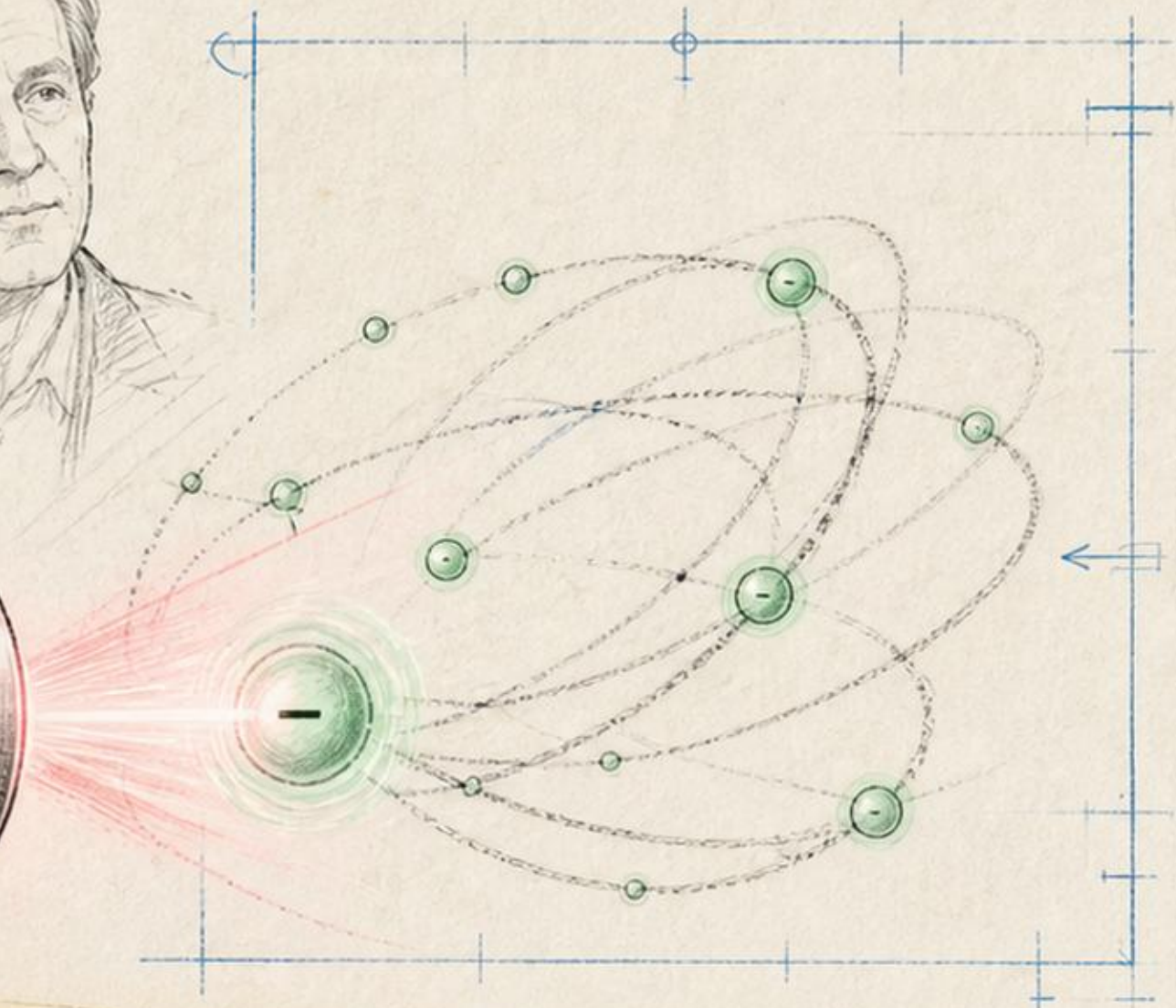
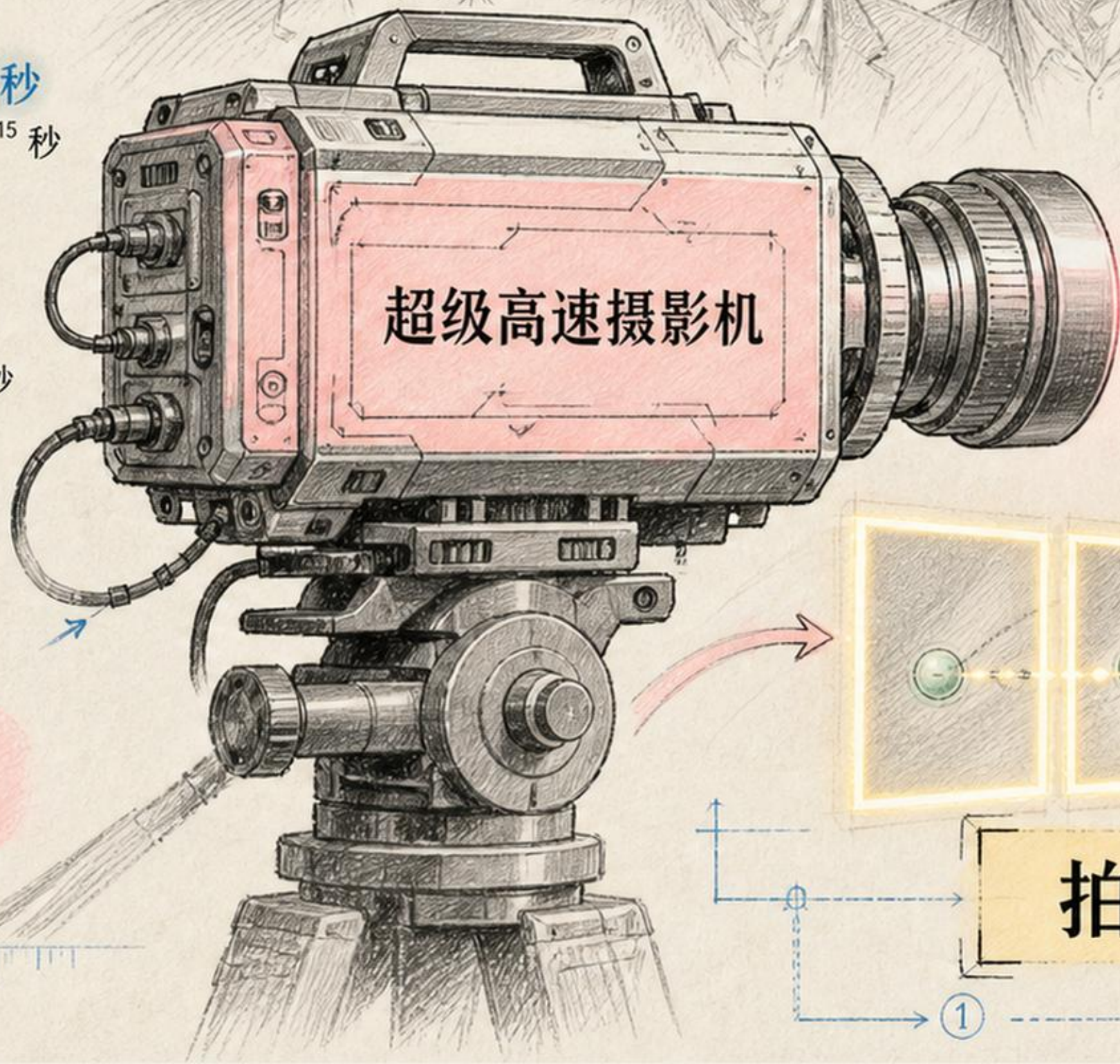
飞秒→阿秒

① 飞秒
 10^{-15} 秒

② 皮秒
 10^{-12} 秒

③ 纳秒
 10^{-9} 秒

④ 阿秒
 10^{-18} 秒



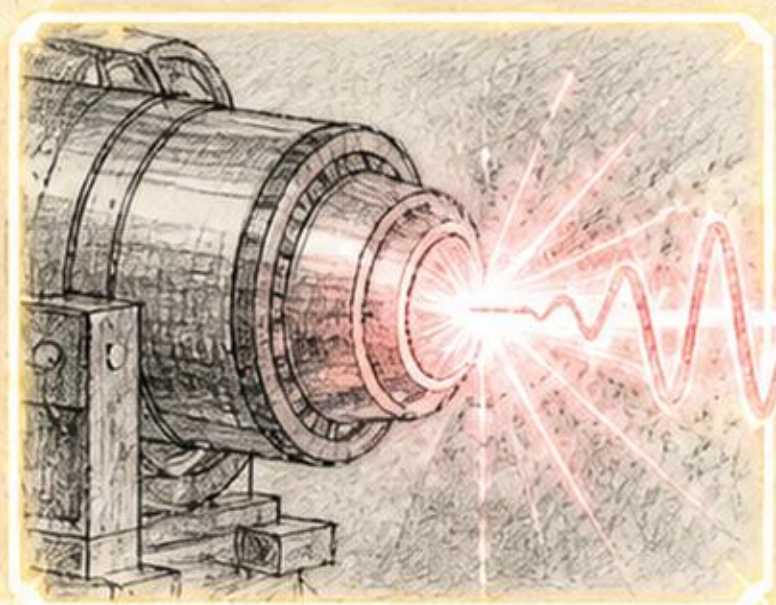
拍到电子的每一帧

①

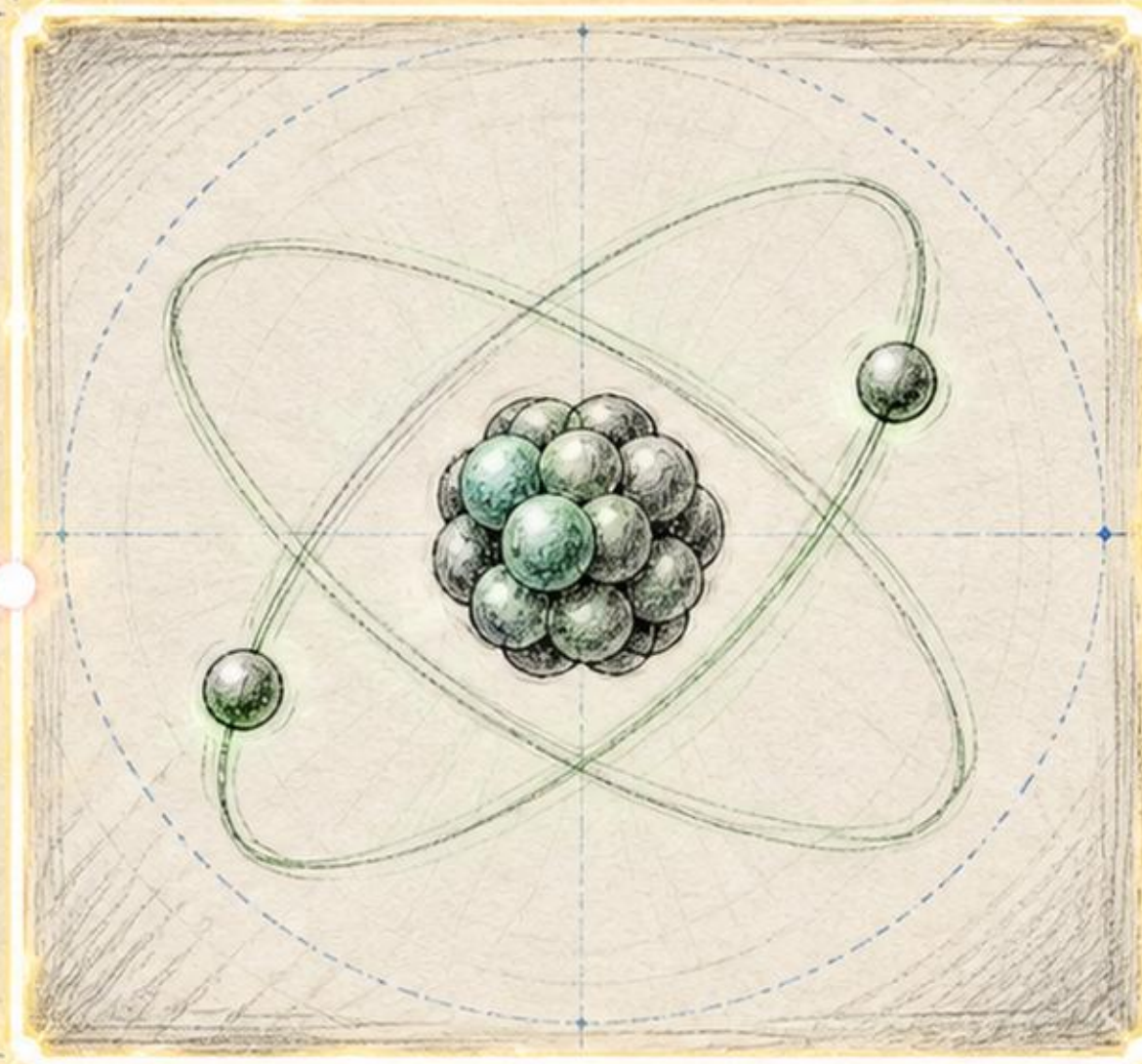
②

③

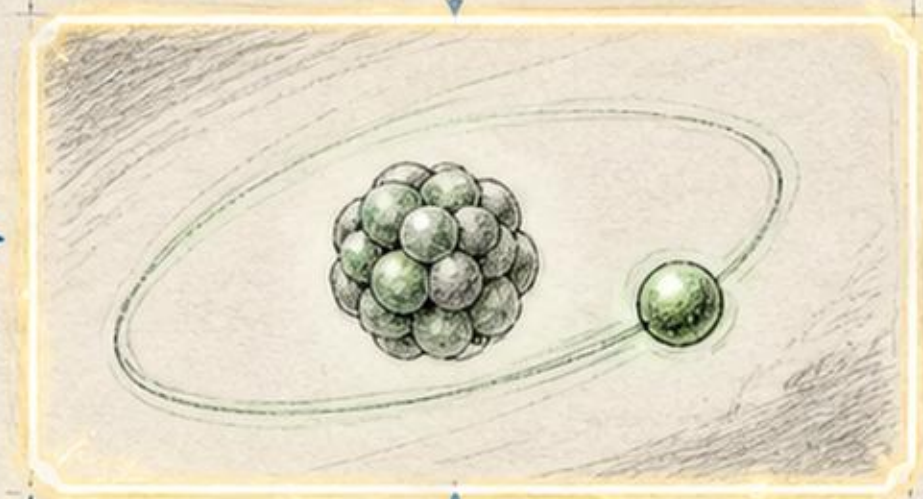
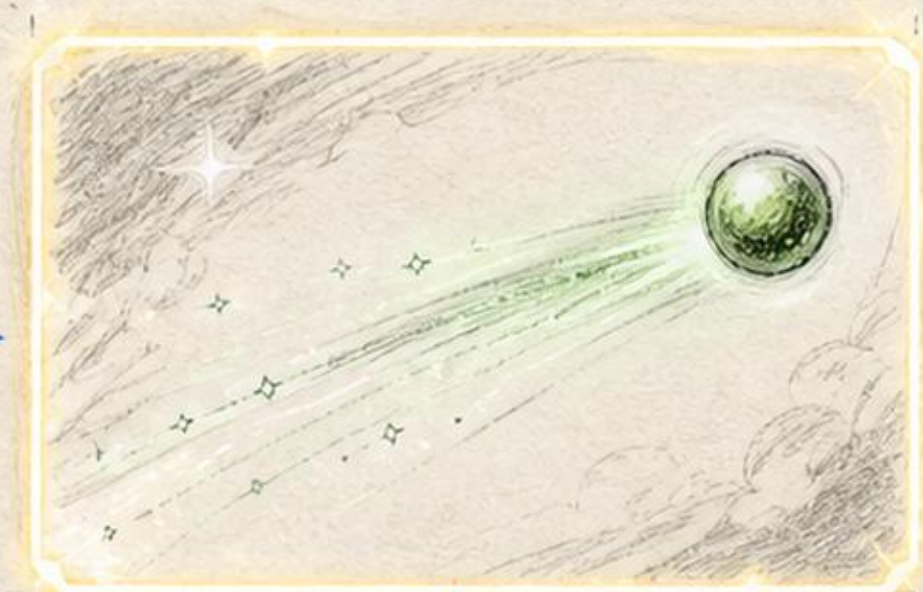
④



①



②

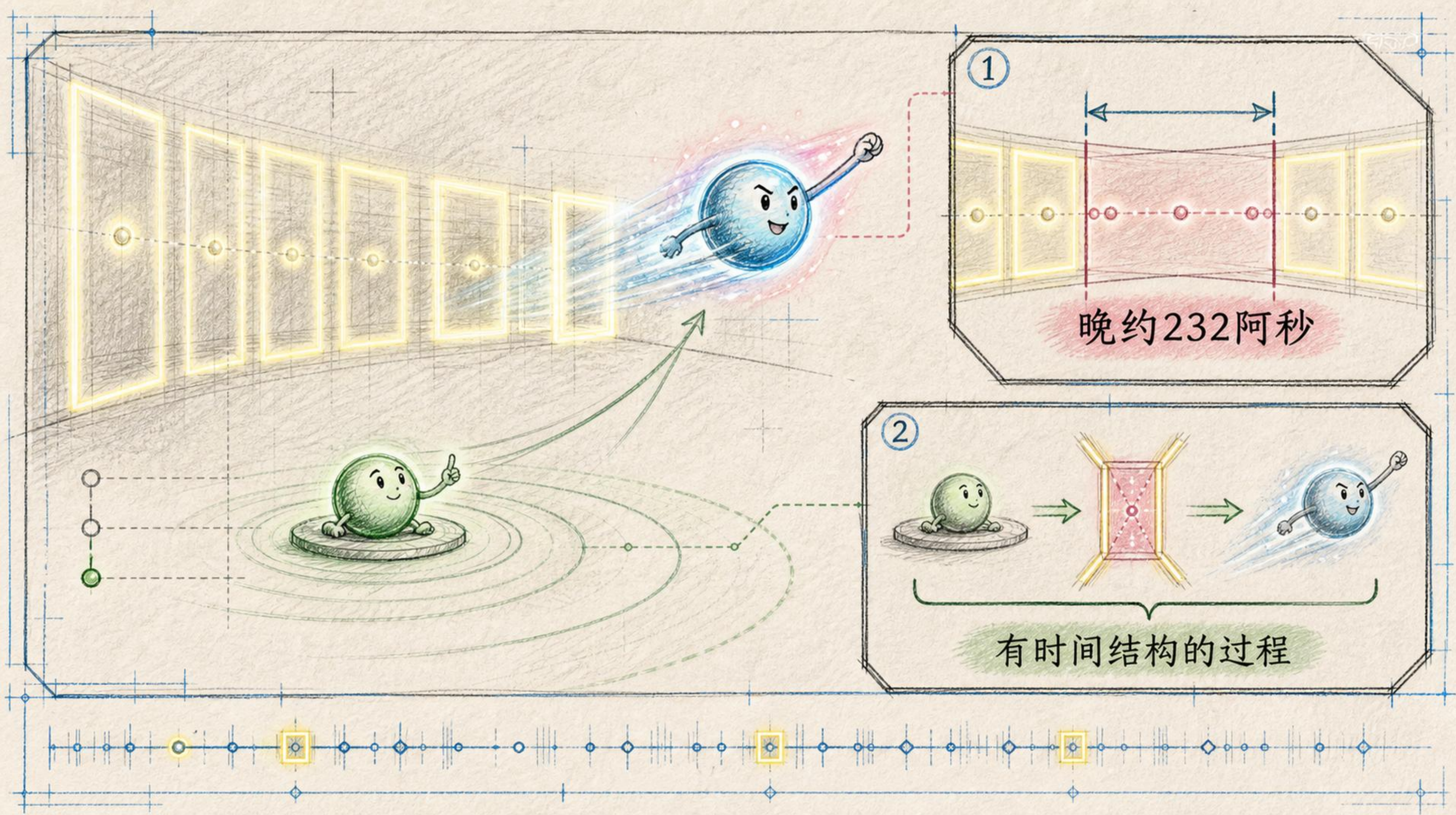


两个电子

③



命运锁在一起

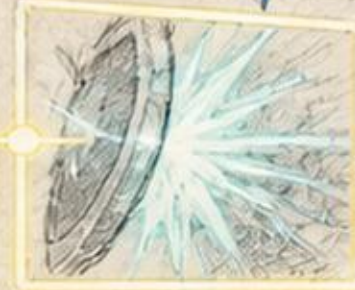
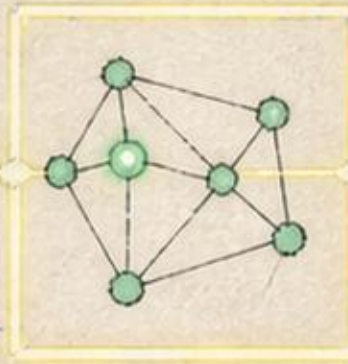
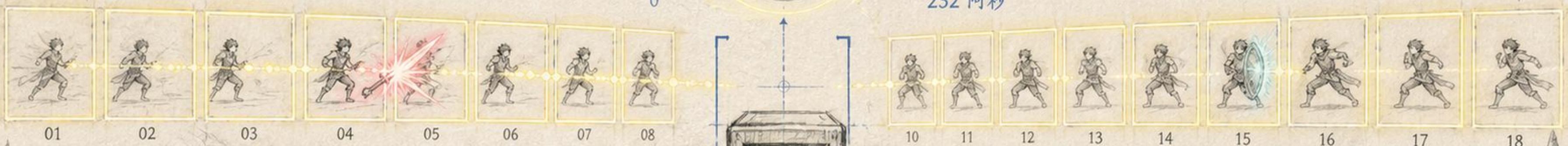


需要花一点时间来渲染



这个处理时间就是232阿秒

232 阿秒



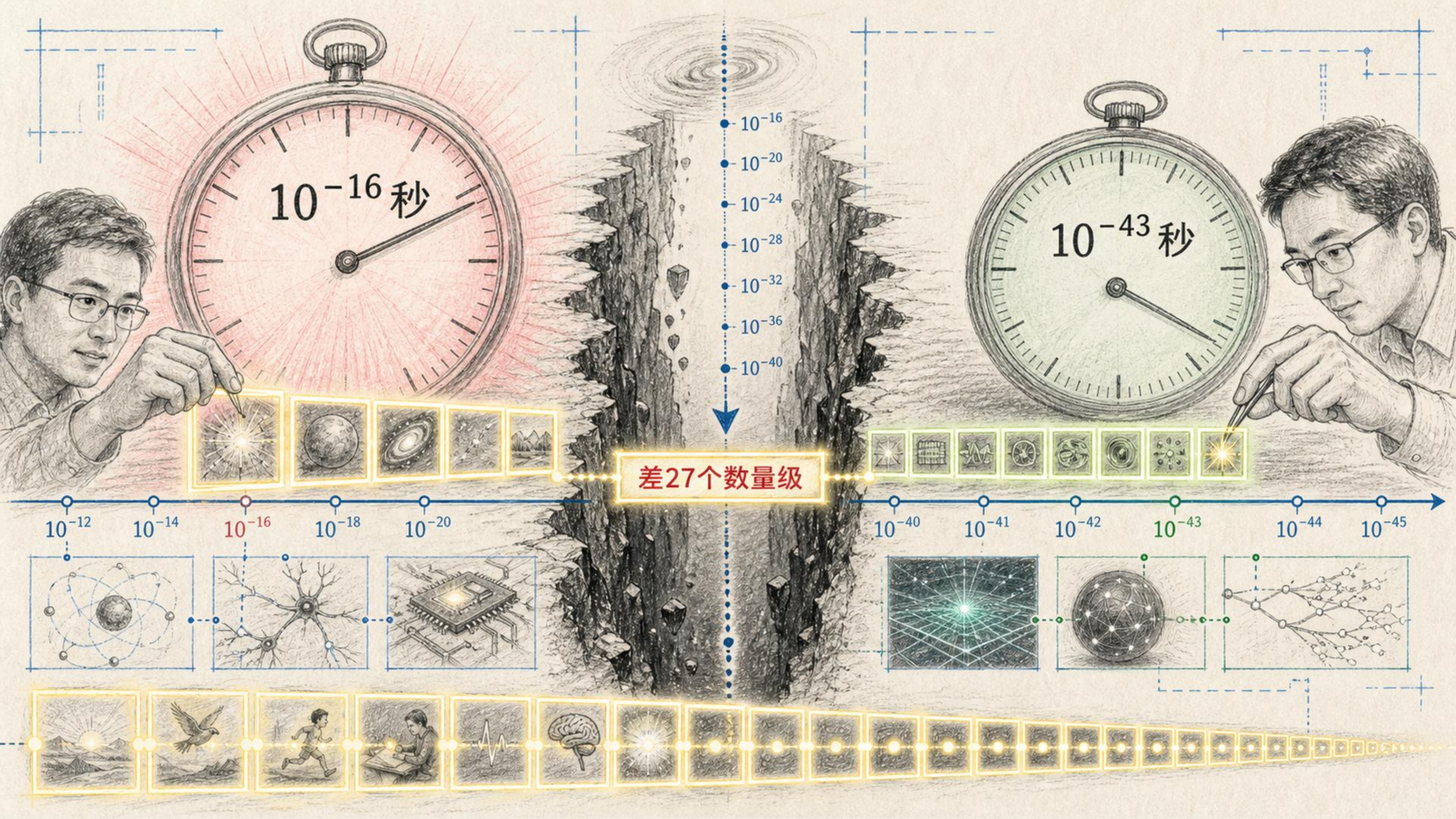
普朗克时间

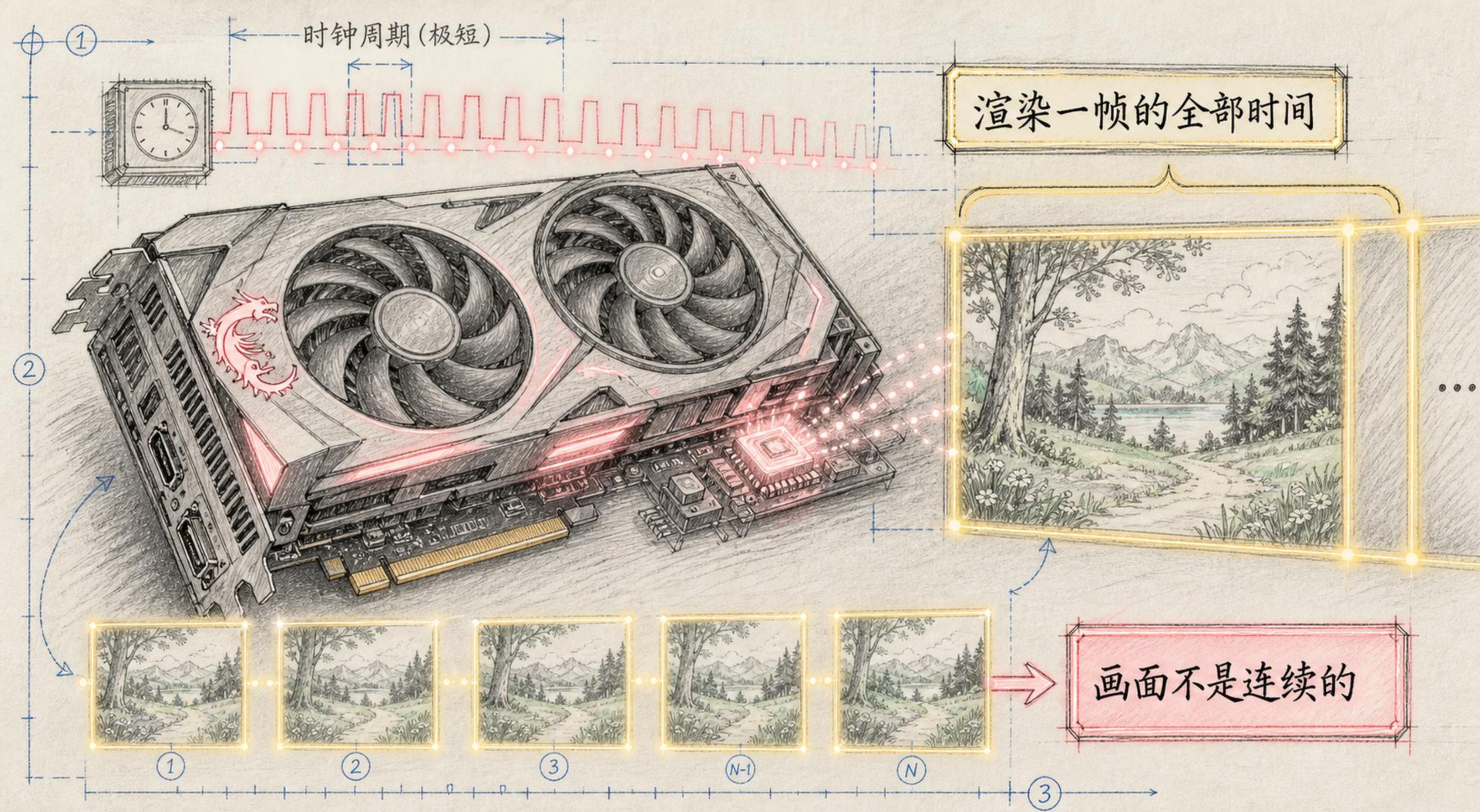
10^{-43} 秒

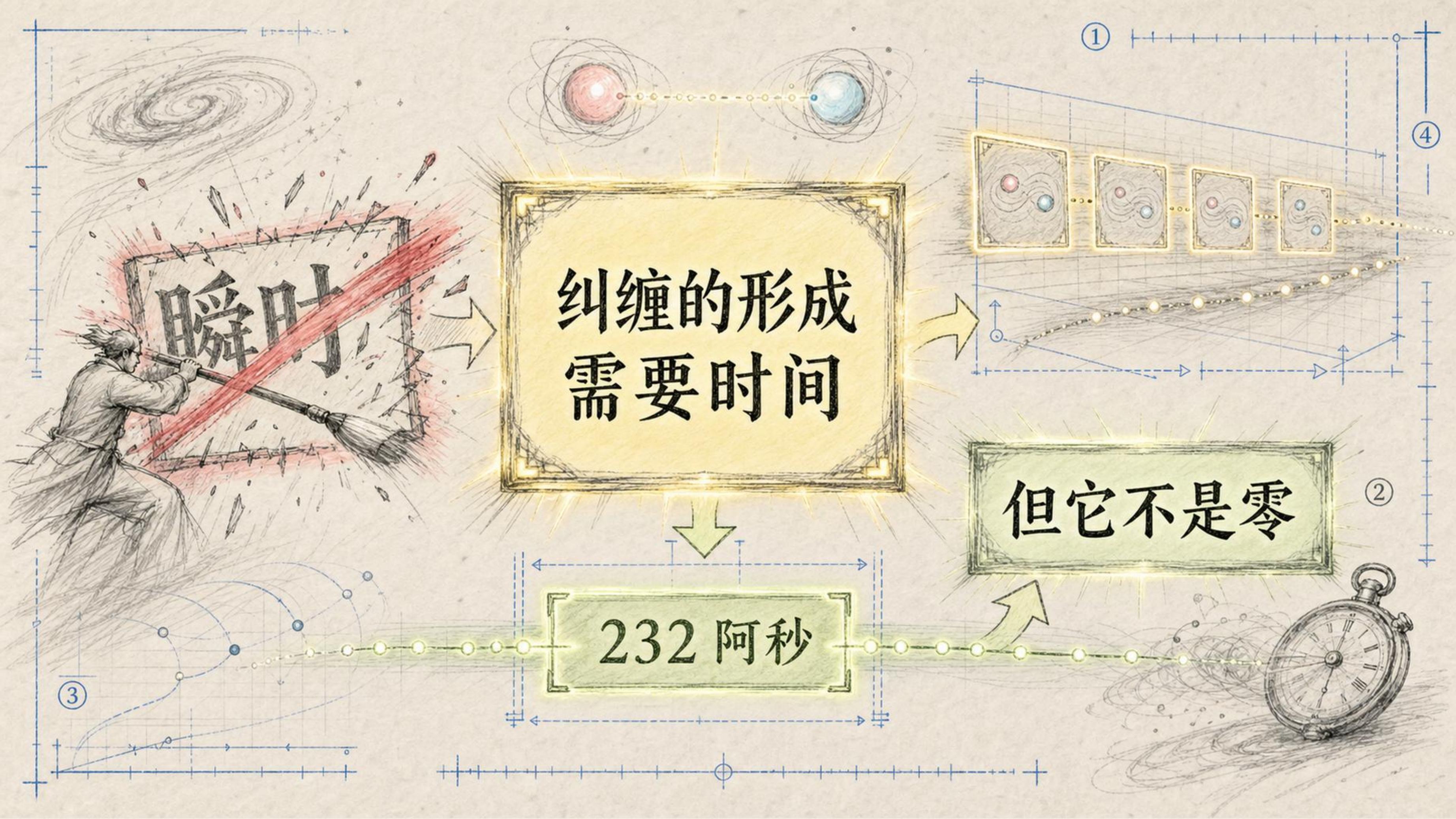


最底层的硬件帧率









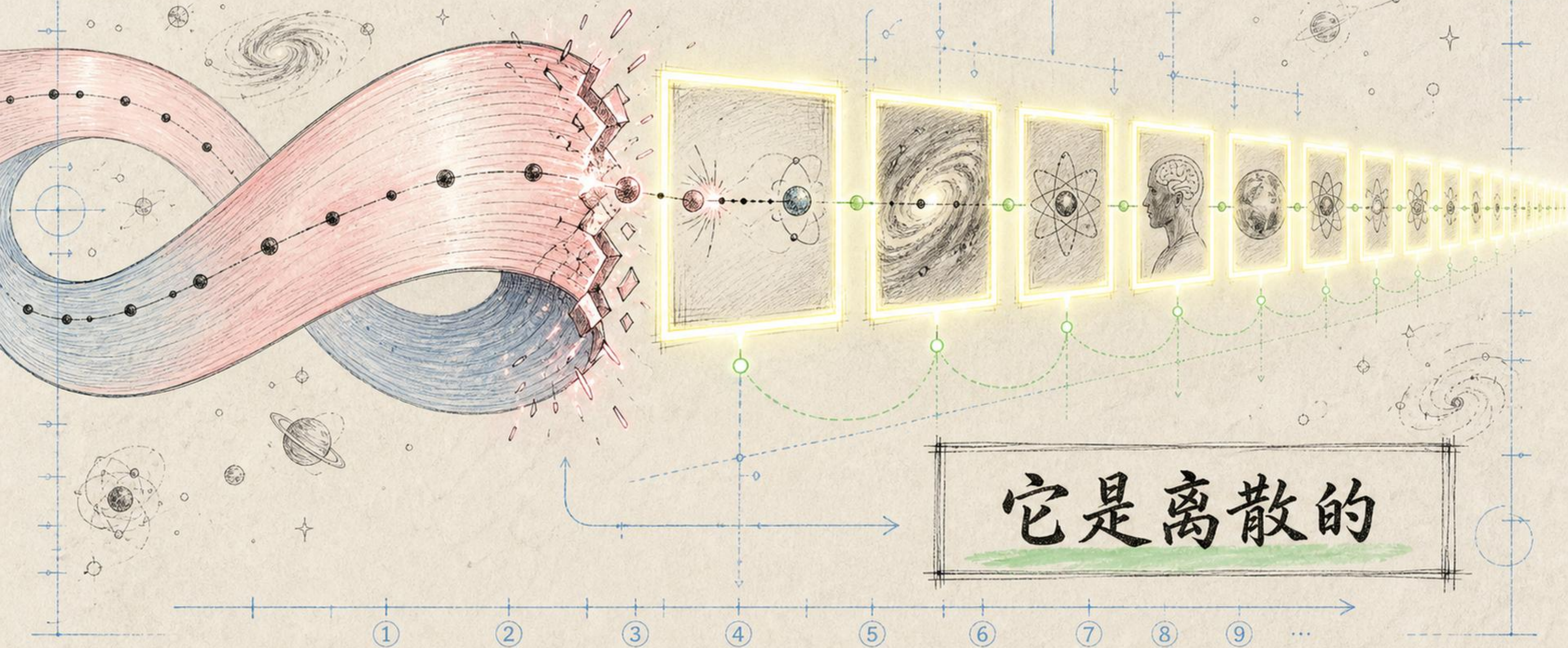
瞬时

纠缠的形成
需要时间

但它不是零

232 阿秒

宇宙的时间线不是连续的



俱舍论



刹那

一弹指六十五刹那



一弹指



1
2
3
...

六十五
刹那

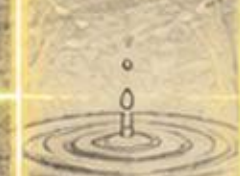
64
65

刹那

一刹那 $\approx$ 十几毫秒

与 232 阿秒
差十几个数量级

阿毗达磨



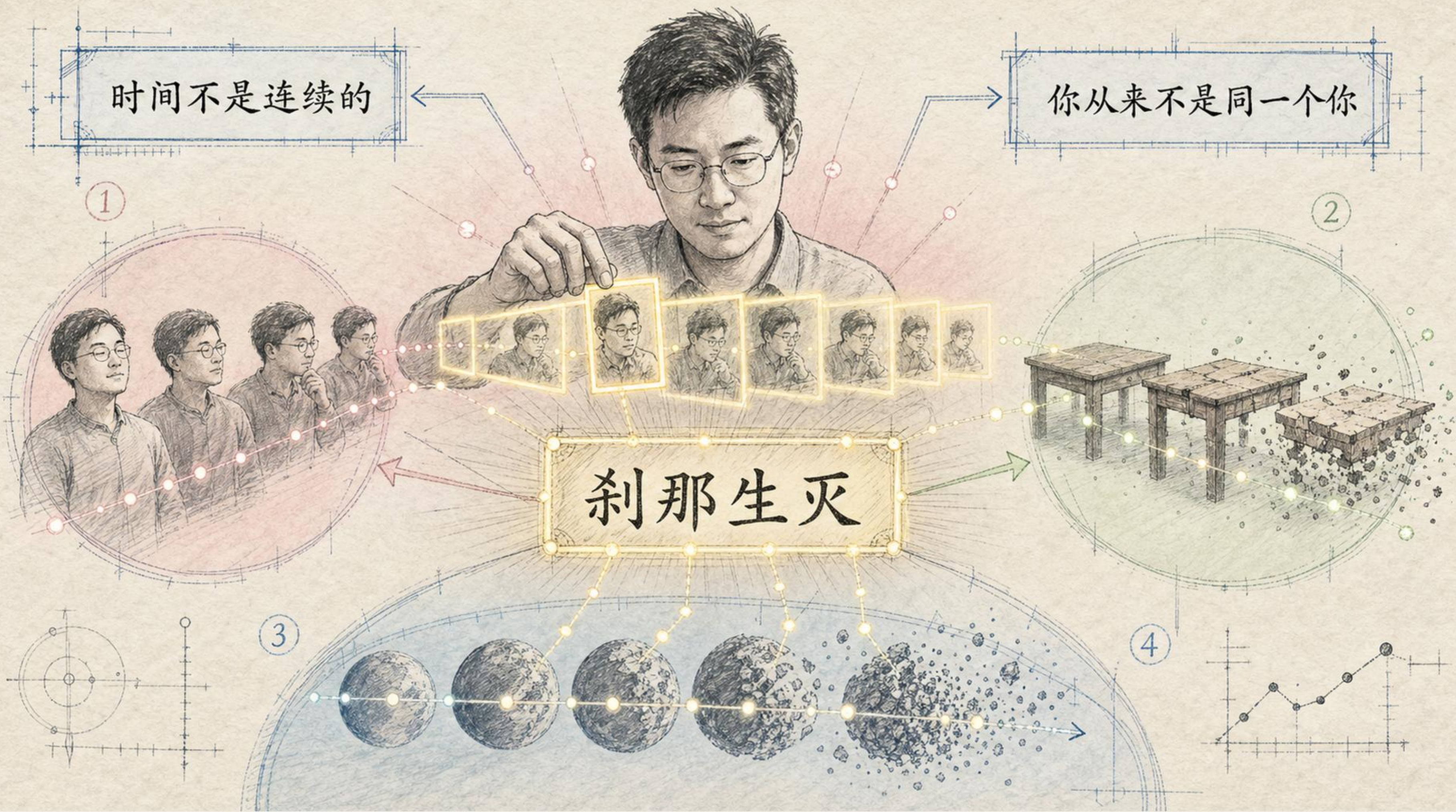
时间不是连续的

你从来不是同一个你

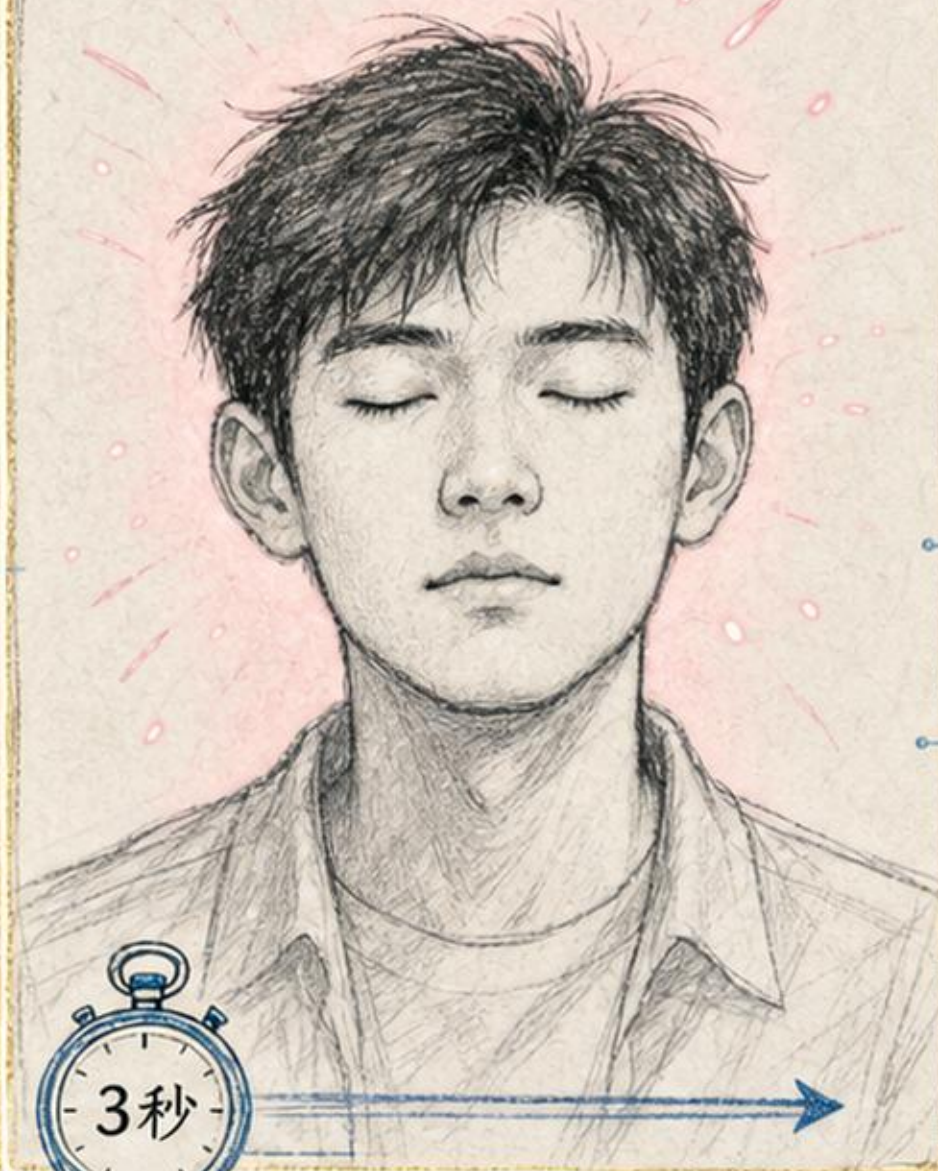
刹那生灭

③

④



1



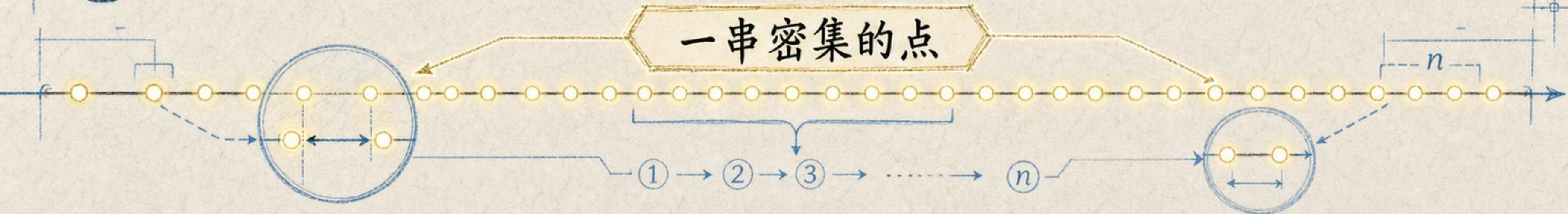
2



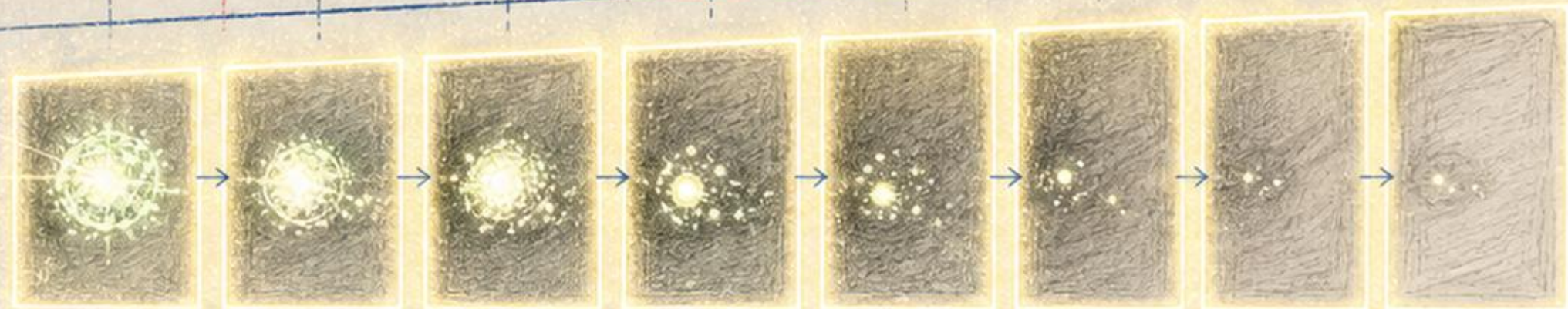
3



一串密集的点



注意力调到
最高精度

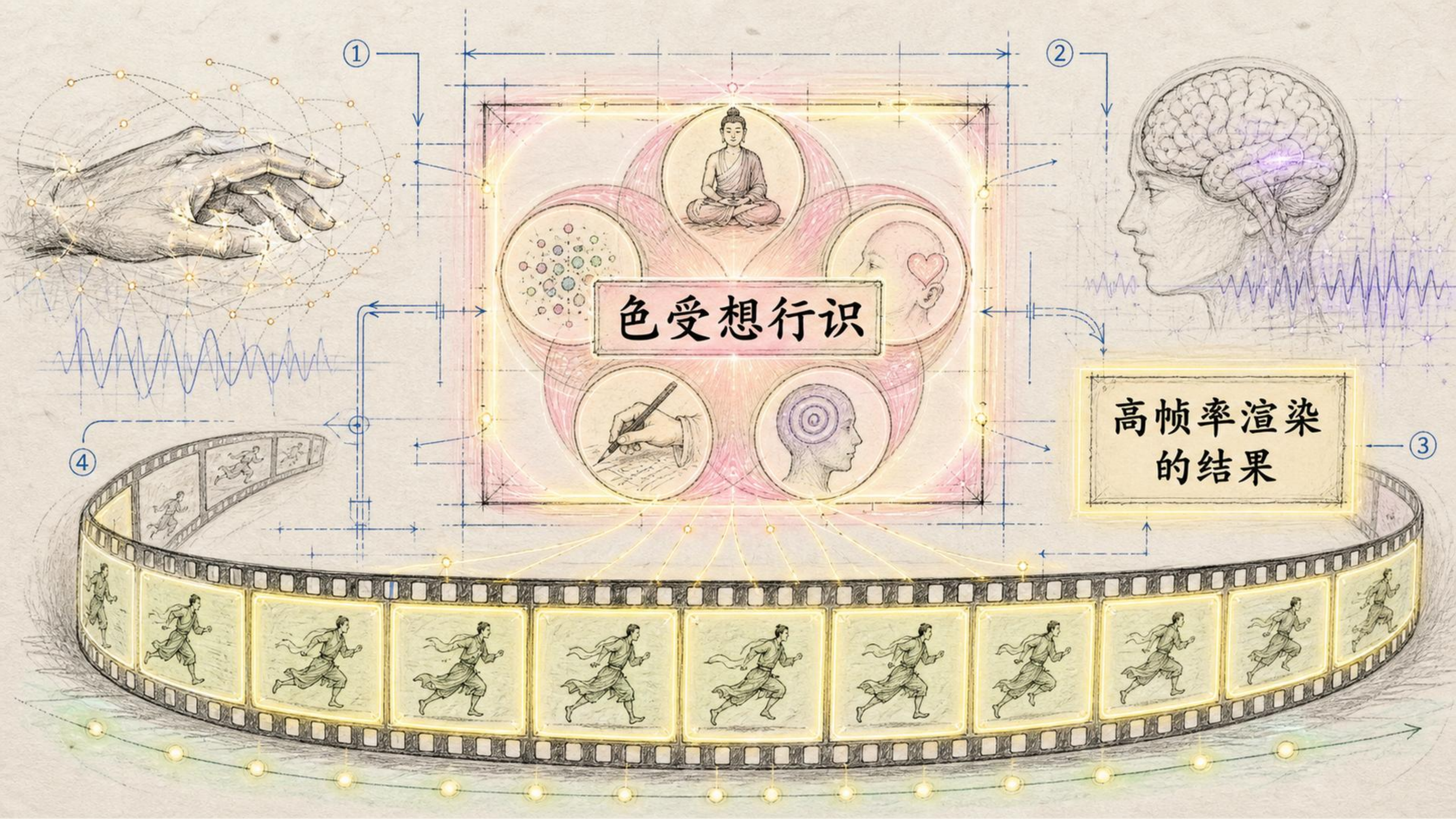


五蕴皆空

①

②

③



基础现实的概率
只有几十亿分之一

模拟假说

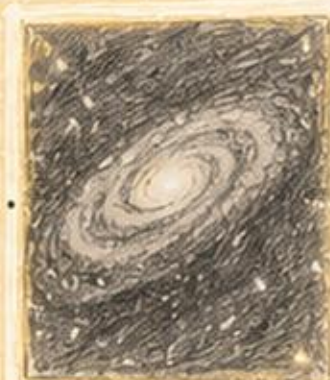
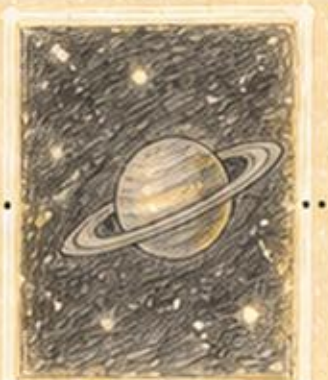


博斯特罗姆



把连续现实切成可数的单帧

时间轴(离散点)



01

02

03

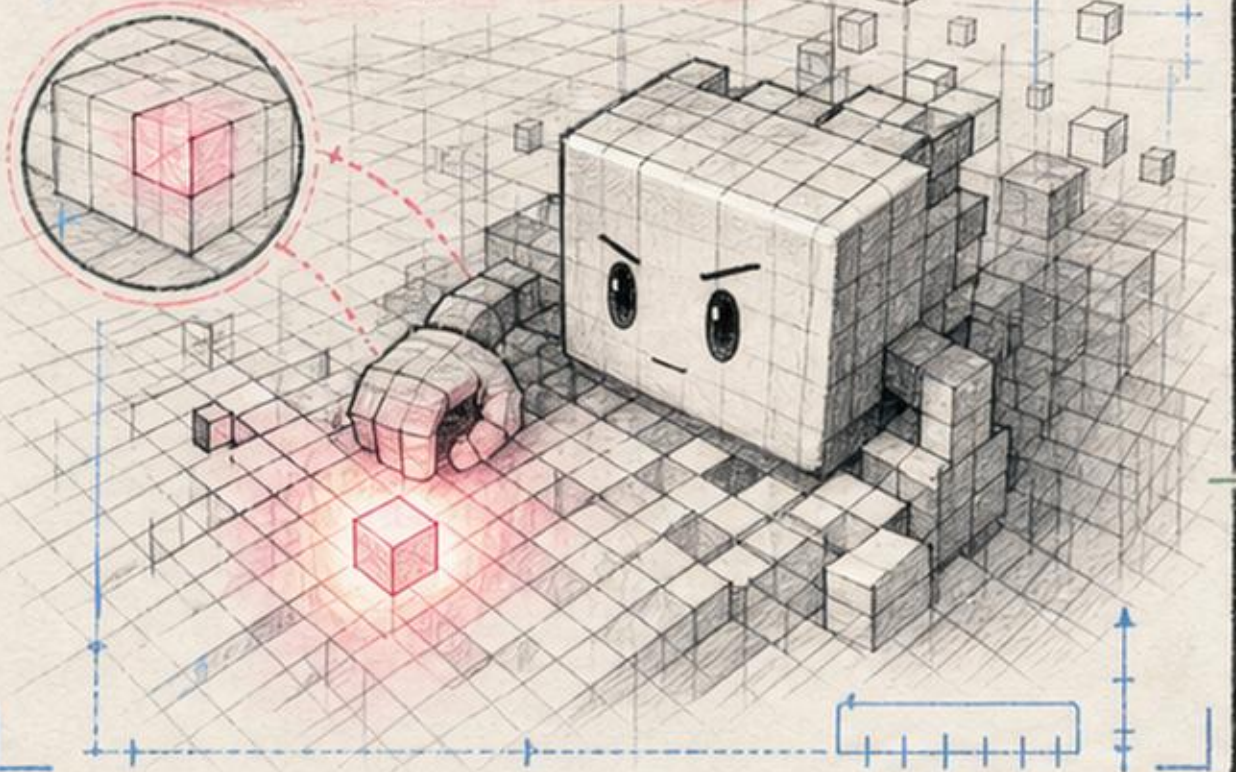
04

05

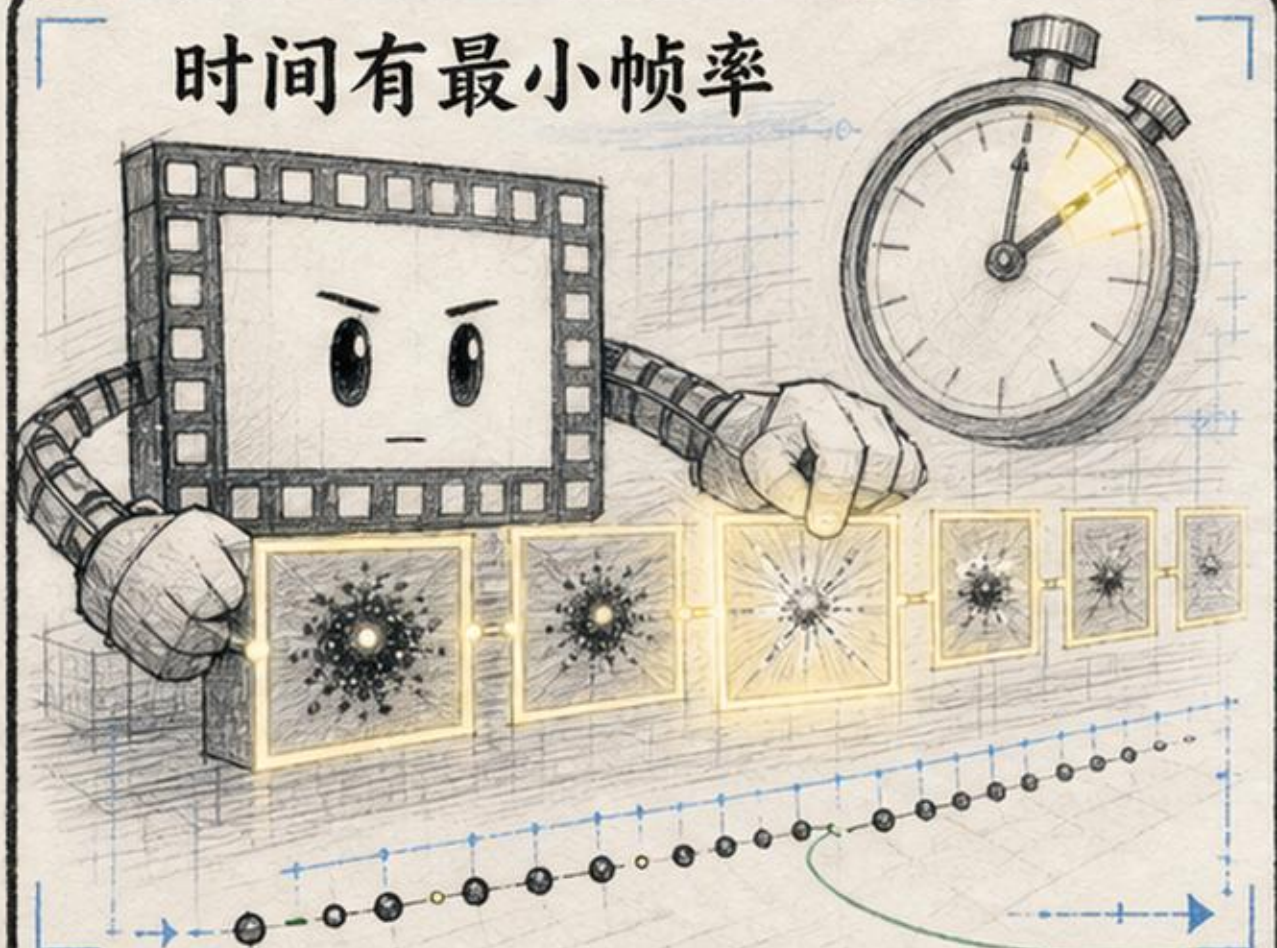
模拟数量远多于基础现实

随机一个意识大概率在模拟里

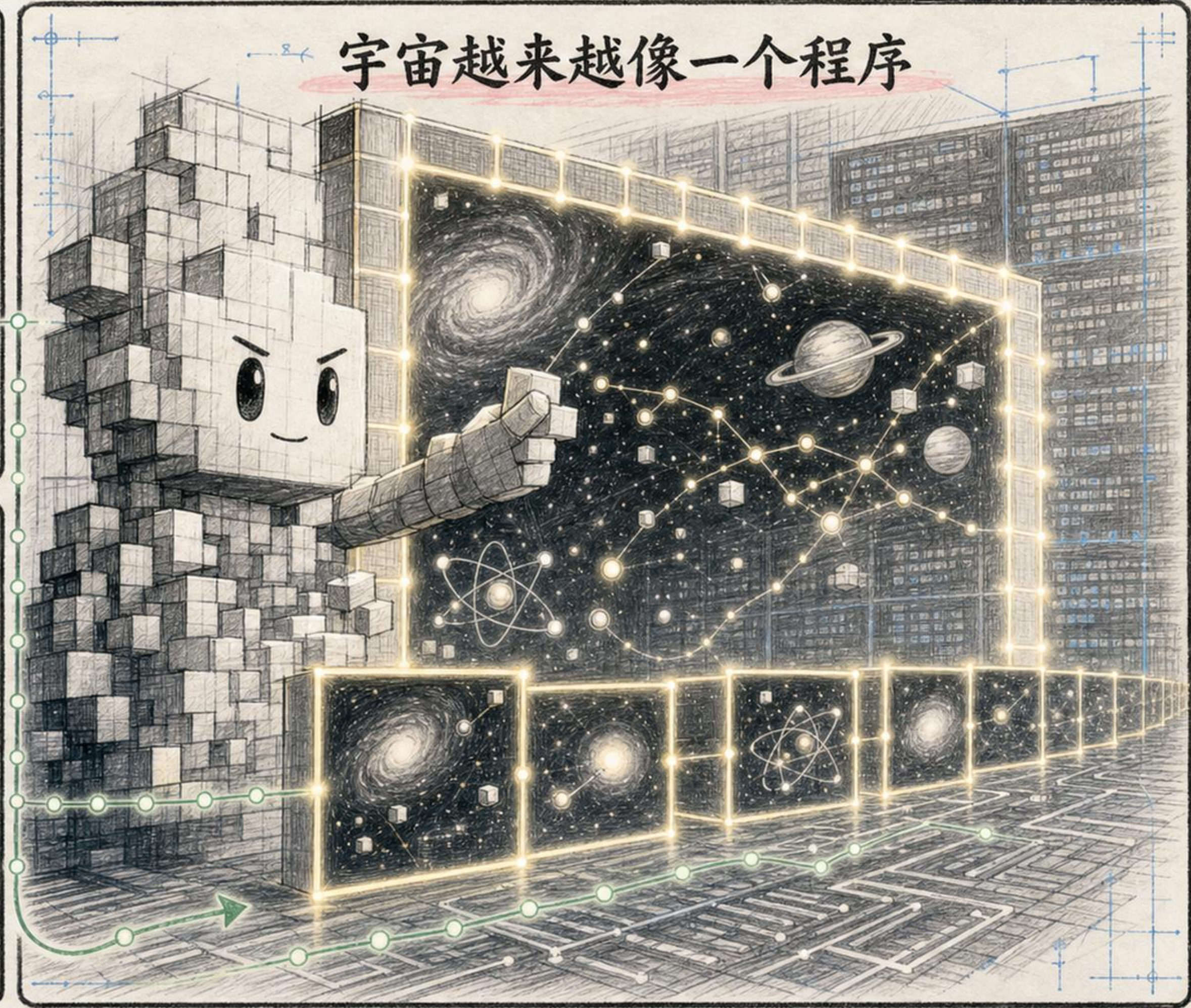
空间有最小像素



时间有最小帧率



宇宙越来越像一个程序





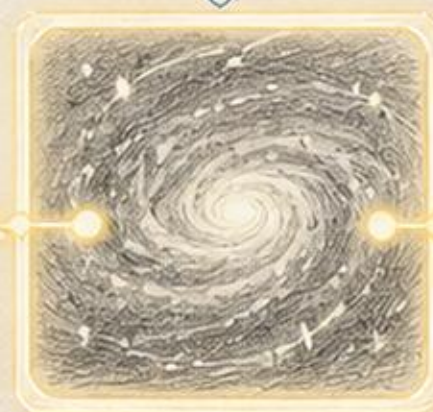
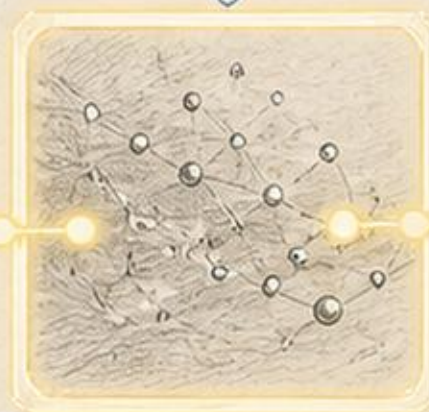
232 阿秒



普朗克时间

不是同一个东西

大了近一千亿亿亿倍



CPU时钟周期

渲染一帧16毫秒

0.3纳秒

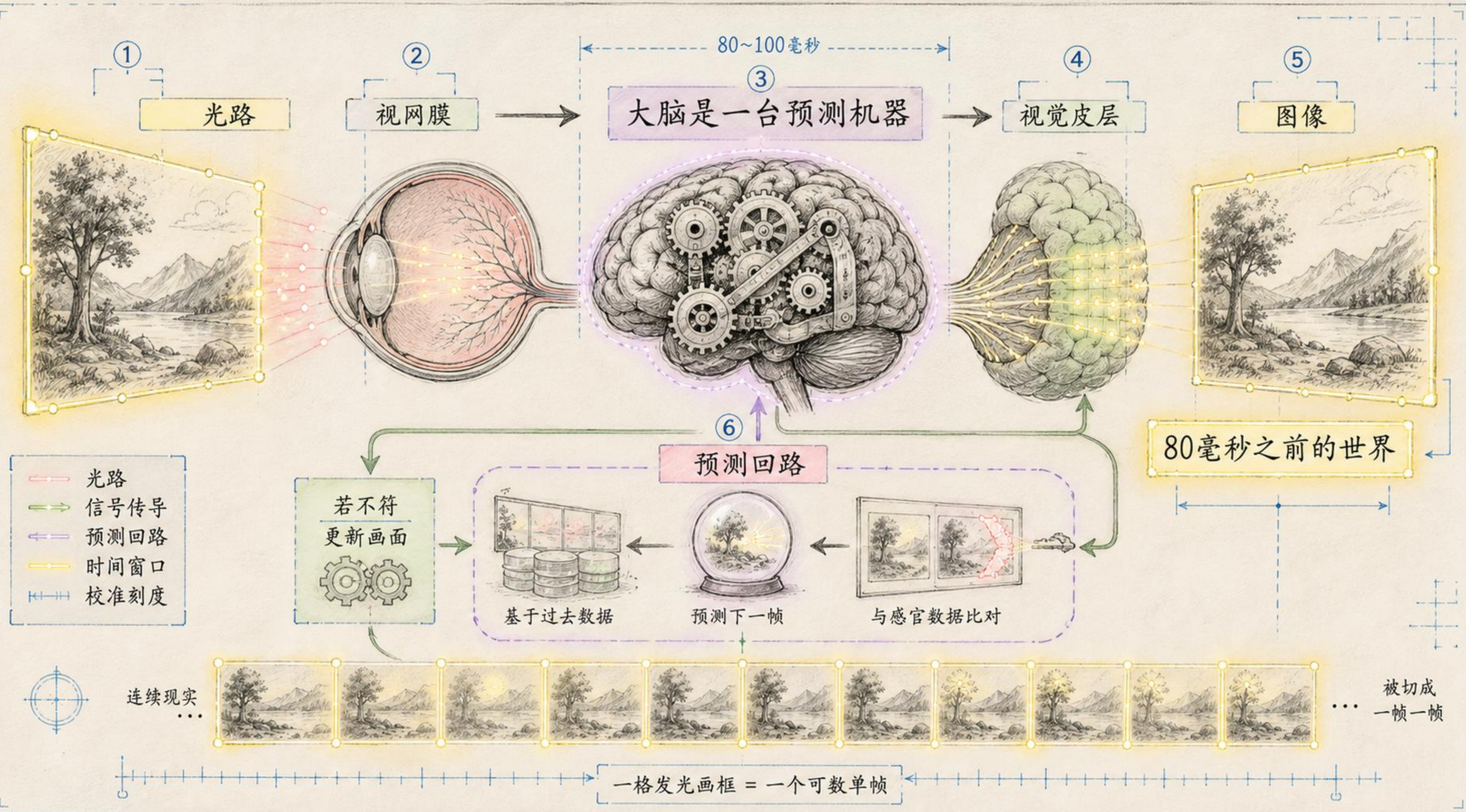
16毫秒

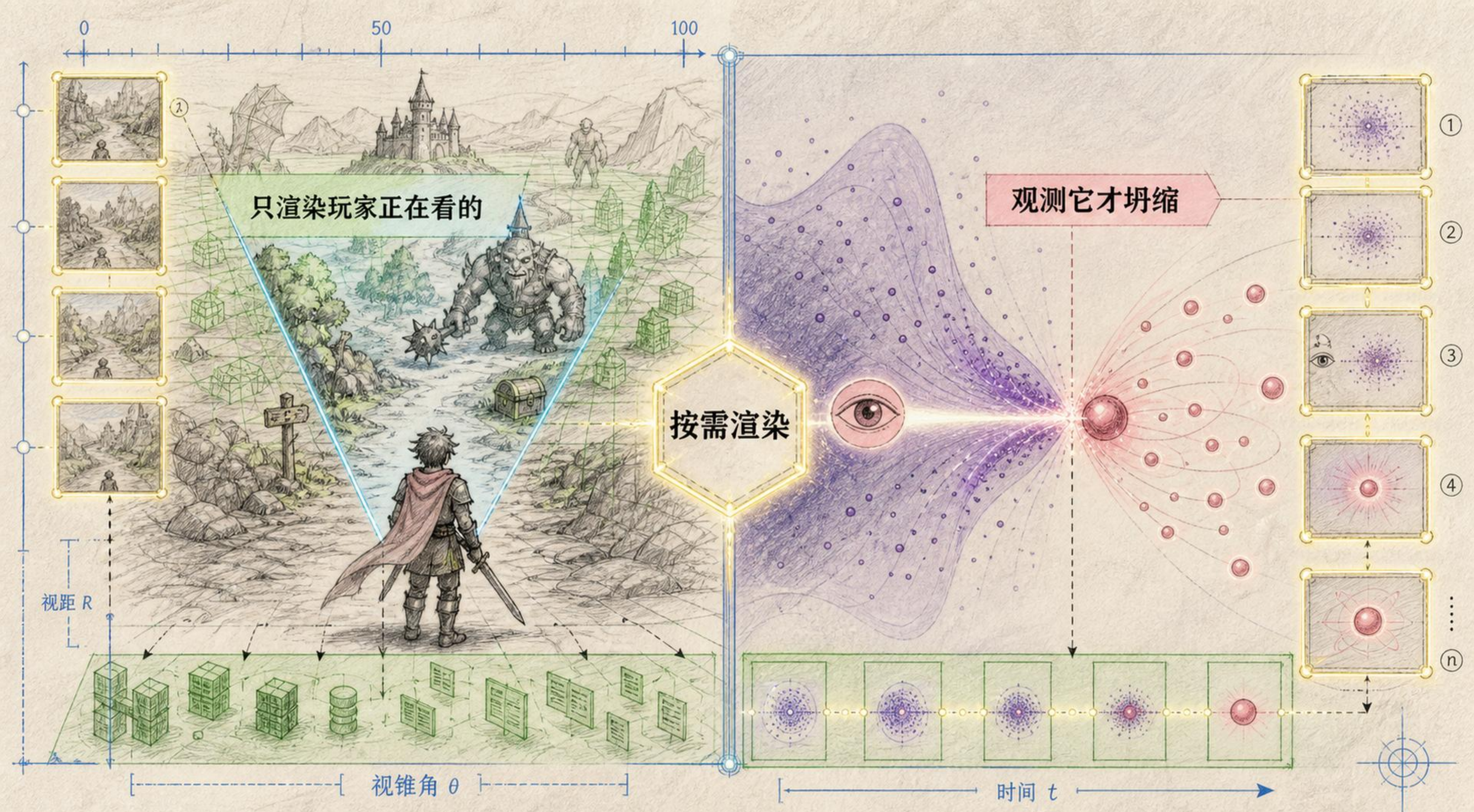
一帧一帧地工作

抓到了帧的证据

一切有为法
如梦幻泡影

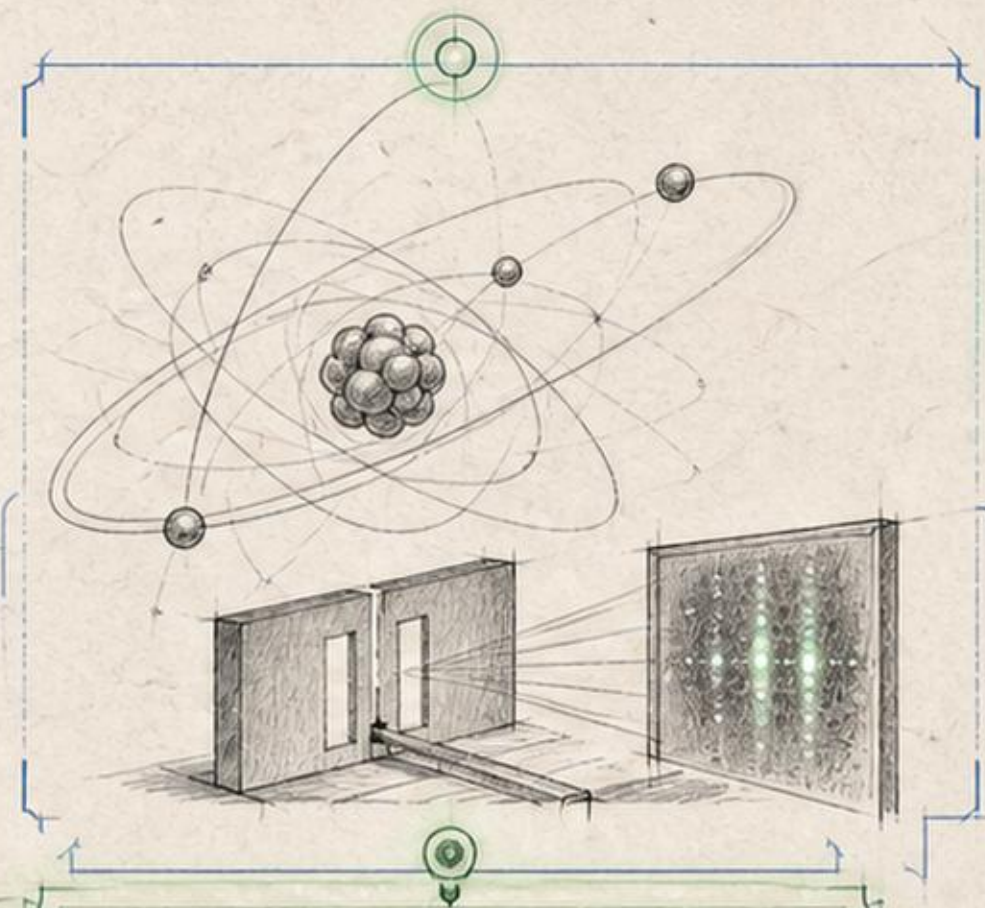






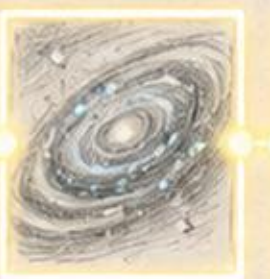
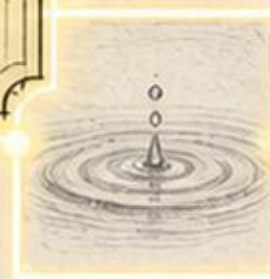


没有不依赖观测的实体



没有不依赖观测的实体

是同一句话



1

2

3

4

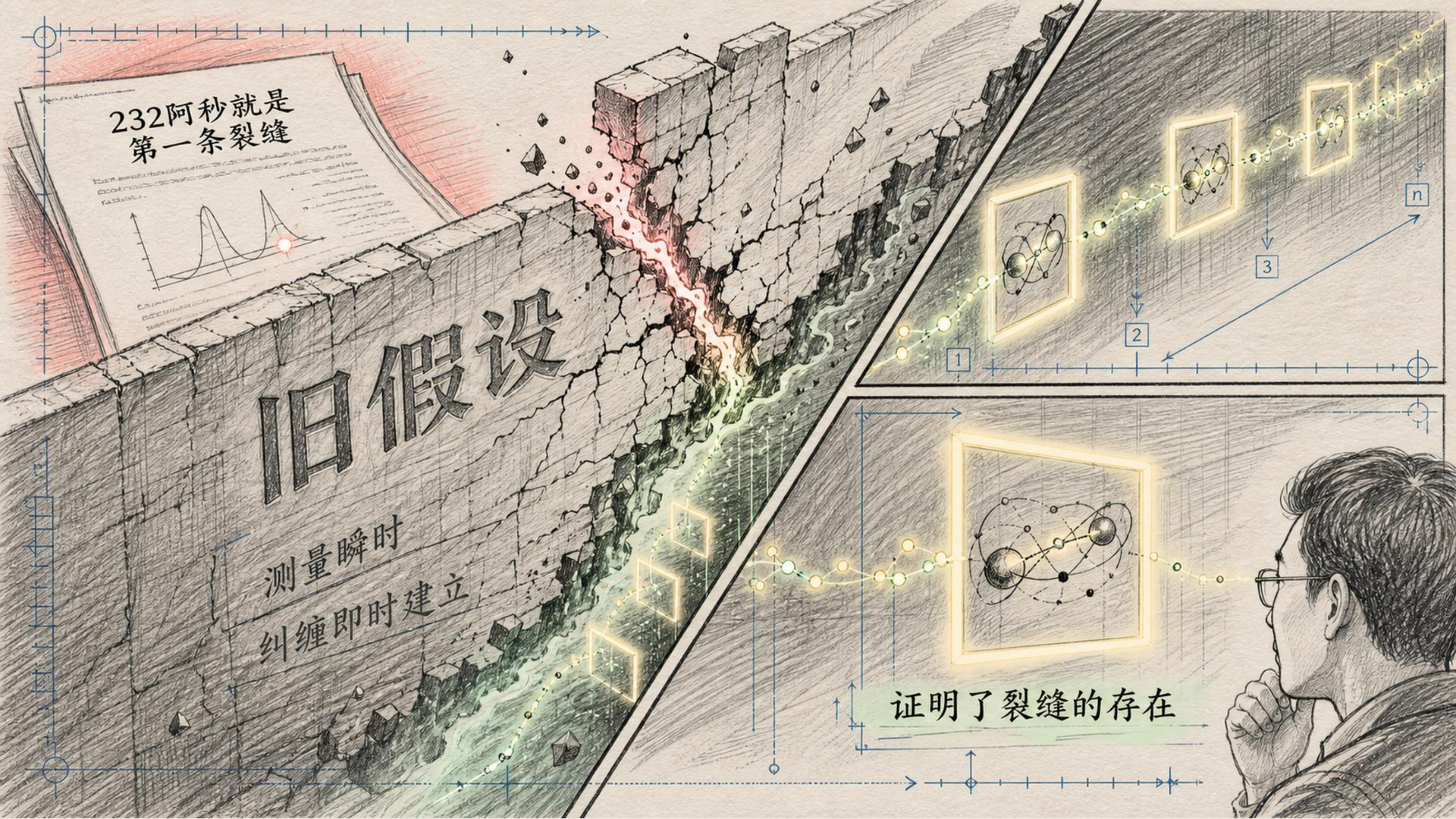
5

232阿秒就是
第一条裂缝

旧假设

测量瞬时
纠缠即时建立

证明了裂缝的存在



光速是宇宙的速度上限

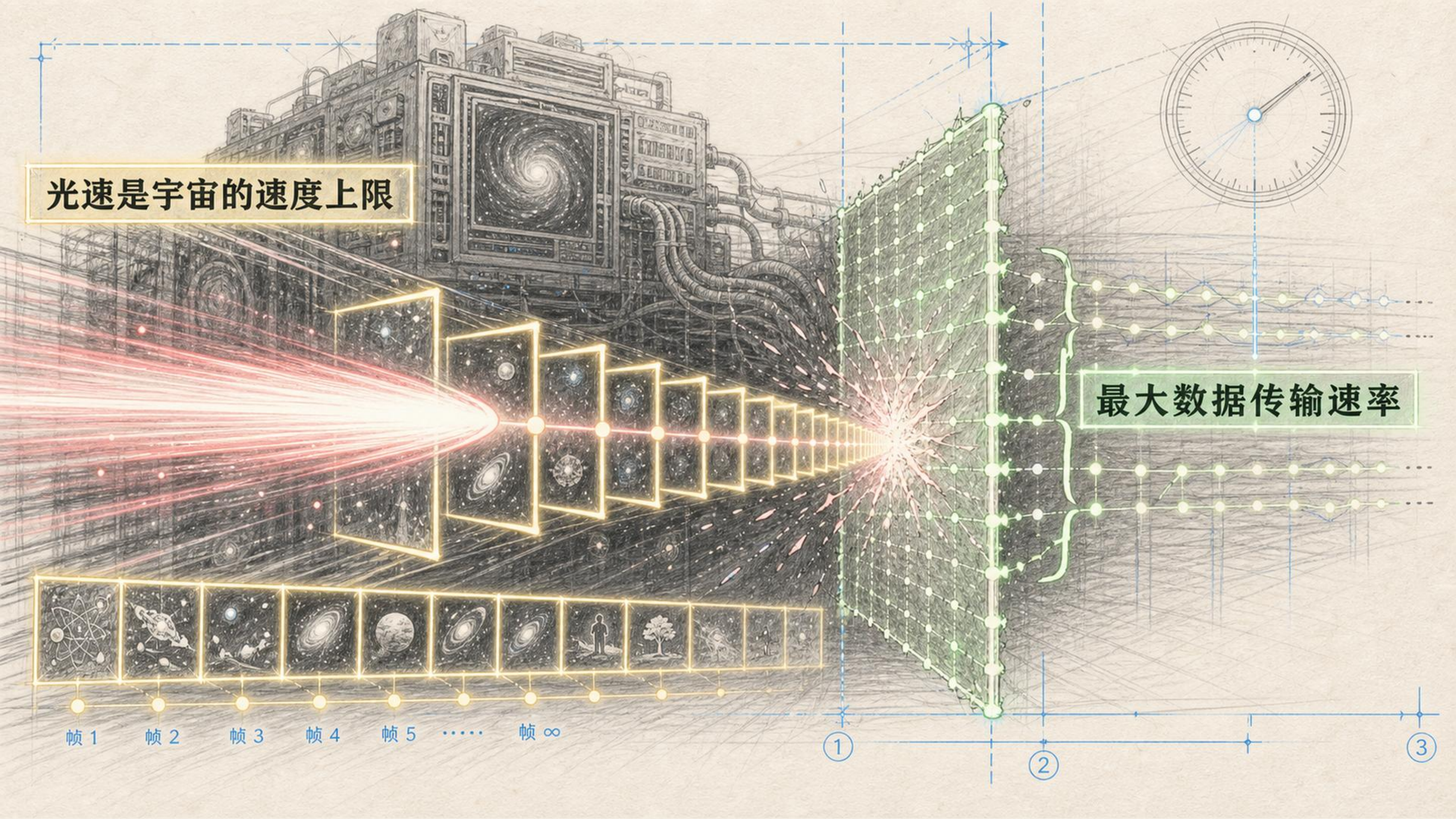
最大数据传输速率

帧 1 帧 2 帧 3 帧 4 帧 5 帧 ∞

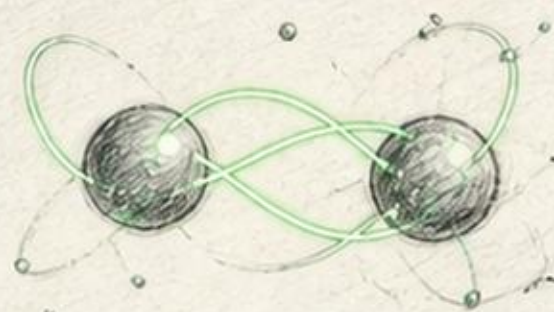
①

②

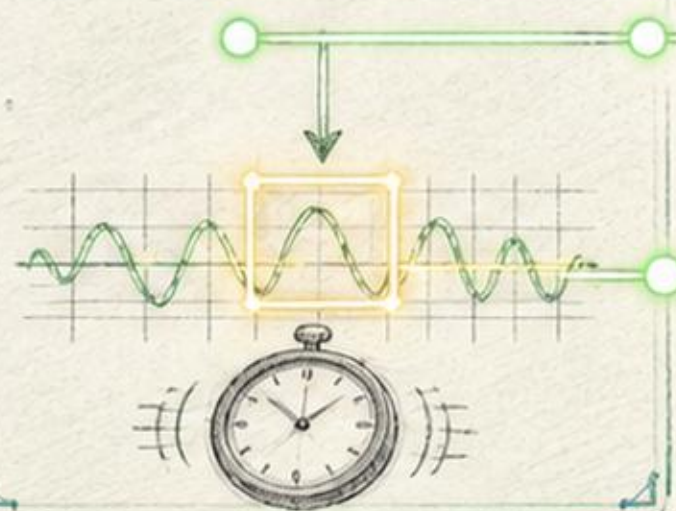
③



已确证



纠缠中电子
出生时间的延迟



待证



直接测量
宇宙时钟周期



合理的猜想
还不是被证实的结论



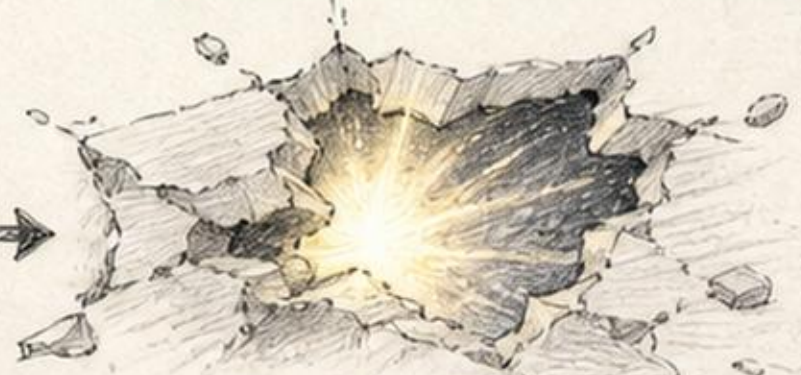
十年前
没人认为能给纠缠计时



2023
阿秒技术三位开创者获诺奖

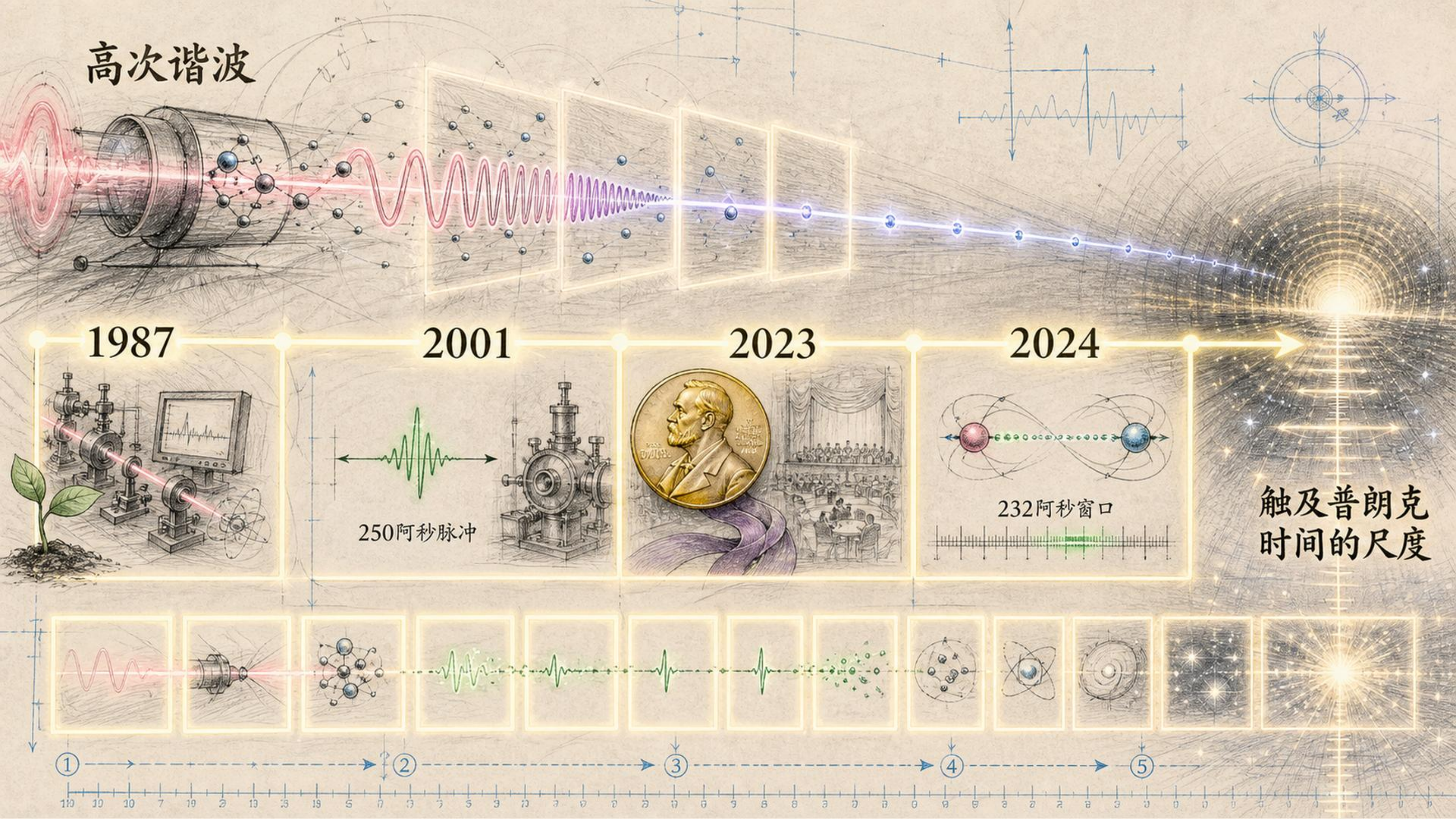


2024
中国科学家捕捉到232阿秒窗口



每一次新测量
都撕开旧认知一个口子

高次谐波





那个间隙
叫涅槃

我是王利杰，我们下期见