

Title: The Clock and the Quantum - Panel Discussion 2

Date: Oct 02, 2008 03:15 PM

URL: <http://pirsa.org/08100054>

Abstract: (Samson Abramsky) Adrian Kent Wayne Myrvold Jos Uffink Lev Vaidman

Suppose for the sake of argument that quantum theory is not fundamental (it is a first order, or equilibrium approximation to....) and quantizing gravity is inappropriate.

- 1) ~~Is~~ Is there evidence for or against this?
- 2) What implications does this have for the problems discussed at this conference?

Roddy Tumulka has an answer for how long a particle is in a barrier: It is given by Bohmian mechanics, but is not directly observable. Only inferred from theory.

Bill Unruh has an answer to the same question that comes from his own theory: All particles spend exactly 7 seconds in barriers, but that is not independent observability. ~~without~~

Go to back.

Without independent
observability, what makes
one theory science, and
the other fantasy?

Why are they both not
just counting angels on the
head of a needle?

what is the most
fundamental "law"
of nature? (And by
the way, what is
a "law"?)

what is the most
fundamental "law"
of nature? (And by
the way, what is
a "law"?)

respect to time!

A stopped clock
is right twice a
day.

How many times a day
is a stopped quantum
clock right?

respect to time!

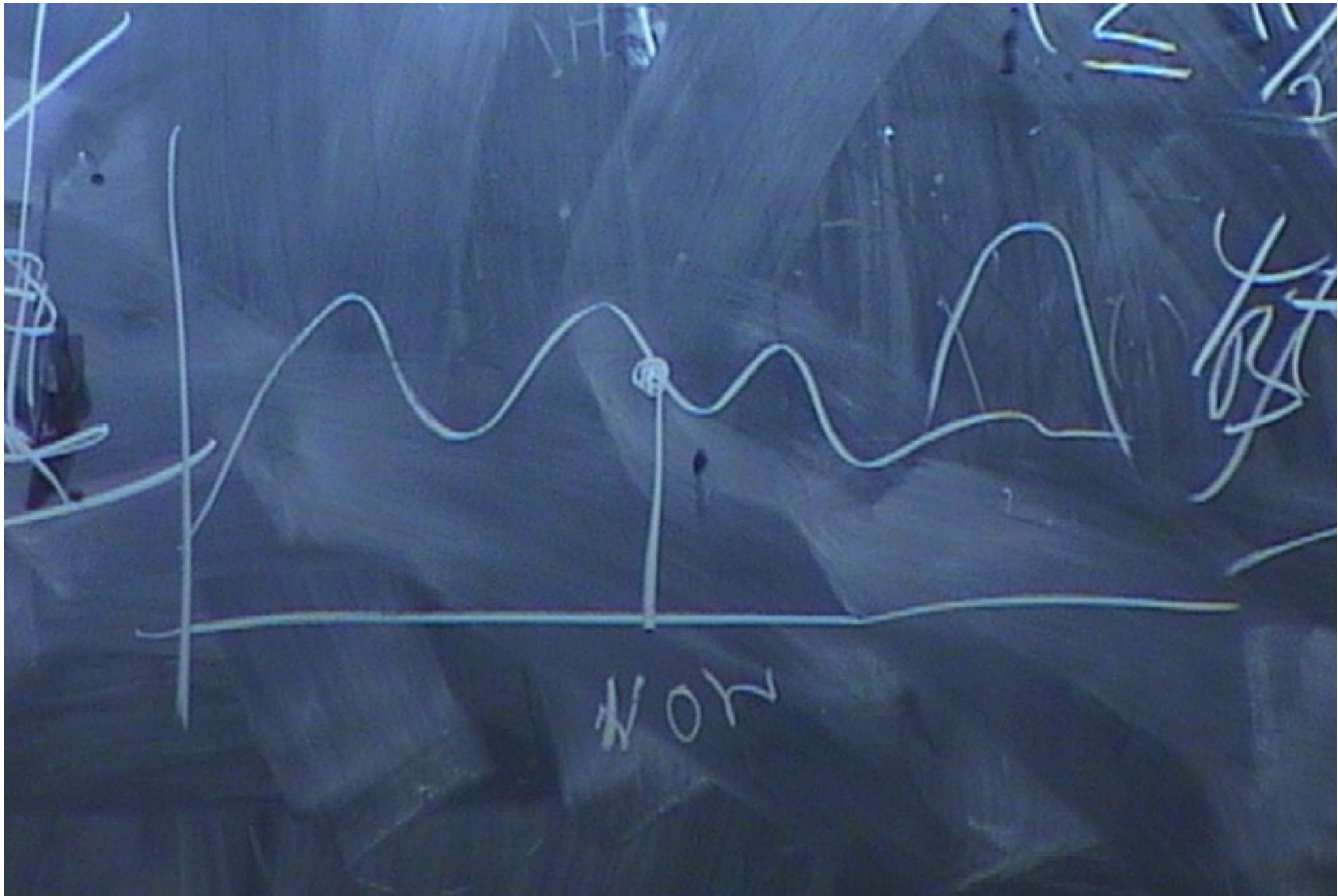
A stopped clock
is right twice a
day.

How many times a day
is a stopped quantum
clock right?

WHAT IS THE USE* OF
DISTINGUISHING THE
BLOCK UNIVERSE FROM
THE EVOLVING STATE?

COULD NOT ANY CONCEIVABLE
THEORY BE WRITTEN IN
BOTH WAYS?

* USE ~ MEANING



Suppose C.

WHAT IS THE USE^{*} OF
DISTINGUISHING THE
BLOCK UNIVERSE FROM
THE EVOLVING STATE?

2
COULD NOT ANY CONCEIVABLE
THEORY BE WRITTEN IN
BOTH WAYS?

* USE ~ MEANING

OF

E

DM

IVABLE

IN

day

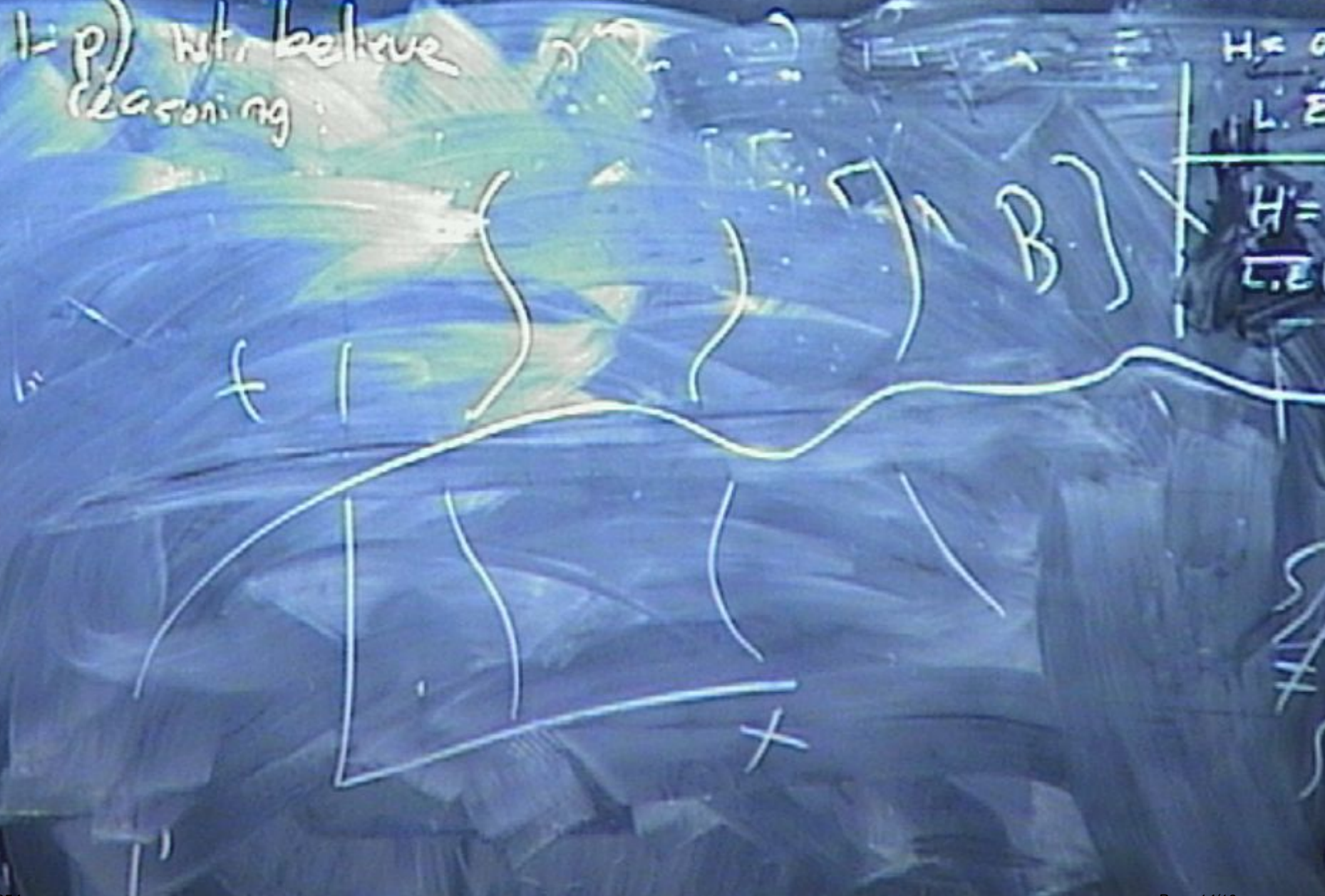
system

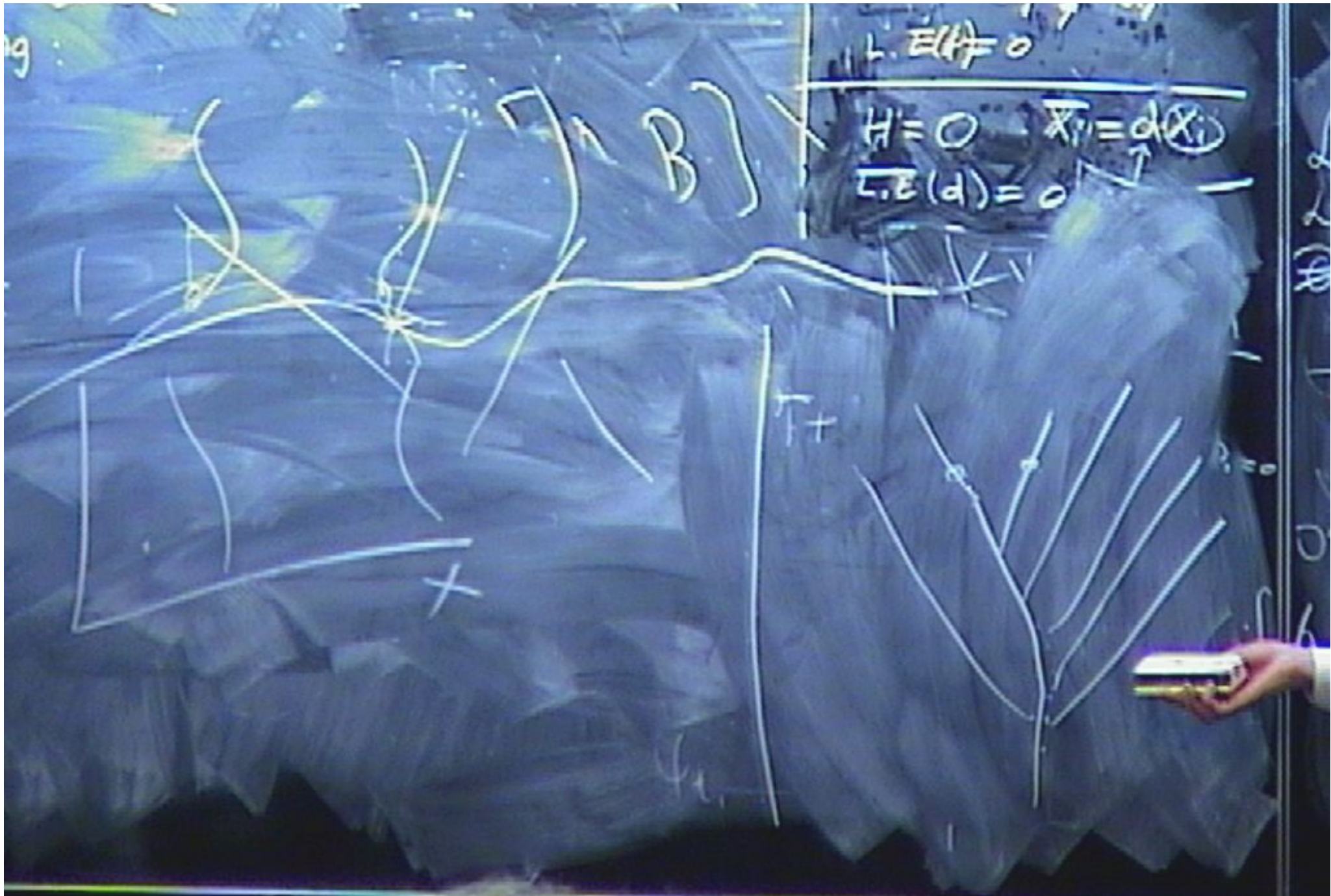
If ~~that~~ the fundamental reality is a succession of moments of space, why do we observe relativity of simultaneity at scales where spacetime curvature is negligible?

$(P, I=P)$ not believe
reasoning



$(P, I=P)$ Not believe
Reasoning





$$L.E(d) \neq 0$$

$$H=0 \quad \bar{X}_i = d(X_i)$$

$$L.E(d) = 0$$

OF

E

DM

IVABLE

IN

day

system

If ~~that~~ the fundamental reality is a succession of moments of space, why do we observe relativity of simultaneity at scales where spacetime curvature is negligible?