

To: Lisa Randall [REDACTED]
From: Jeffrey Epstein
Sent: Sun 10/4/2009 7:22:23 PM
Subject: Re:

6 is fine [REDACTED] or send number

On Sun, Oct 4, 2009 at 2:30 PM, Lisa Randall <[REDACTED]> wrote:

What happened? I'll skip bad spacetime continuum joke.
I'll be back about 6. Let me know if you will have time.

Jeffrey Epstein wrote:

if 2 is good is there a number to call?

On Sun, Oct 4, 2009 at 12:34 PM, Jeffrey Epstein <jeevacation@gmail.com
<mailto:jeevacation@gmail.com>> wrote:

2pm?

On Sun, Oct 4, 2009 at 11:21 AM, Lisa Randall
<[REDACTED] <mailto:[REDACTED]>>
wrote:

Any availability in the spacetime continuum today or tomorrow?

Jeffrey Epstein wrote:

joking, for me , space and time are disconnected as my
fingers hunt for keys

On Fri, Oct 2, 2009 at 6:00 PM, Lisa Randall
<[REDACTED]
<mailto:[REDACTED]
<mailto:[REDACTED]
<mailto:[REDACTED]>>> wrote:

Oops. Problem of email. No offense intended. I was really
a little
confused. Or were you joking?

Jeffrey Epstein wrote:

sorry,
On Fri, Oct 2, 2009 at 5:41 PM, Lisa Randall
<[REDACTED]>

<mailto:[REDACTED]>
<mailto:[REDACTED]>
<mailto:[REDACTED]>
<mailto:[REDACTED]>
<mailto:[REDACTED]>
<mailto:[REDACTED]>
<mailto:[REDACTED]>>>> wrote:

I think I'm reaching the limits of my ability to disentangle grammar and spelling but here goes:

Jeffrey Epstein wrote:

thanks , question , what does it look like if time is running backward , wouldn't it be decelerating,, into flat space from the singularity outward,, therefore explosion than

[then] expansion.
It looks like big bang, not inflation before horizon. So not explosive expansion.

but always slowing after crossing the horizon .

after crossing horizon there isn't really a cosmological interpretation anymore. Time and space have switched back.

looking in reverse it appears things accelerate as they approach,, charged would be as a result of the deceleration.

don't understand this last comment.

On Fri, Oct 2, 2009 at 5:27 PM, Lisa Randall

<[REDACTED]>
<mailto:[REDACTED]>
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<mailto:[REDACTED]>
<mailto:[REDACTED]>>
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<mailto:[REDACTED]>
<mailto:[REDACTED]>>>>> wrote:

Hi Jeffrey. It was interesting-as always.
For your question, let's first straighten
out that
there are
3 types
of bhs we might be discussing:
Schwarschild, charged,
and Kerr. I
didn't say much about Kerr--I mostly
discussed charged--
since they
are changing with time and a bit more
complicated but
indeed they
have 2 horizons (just like charged black
holes).

Two horizon scenario means time and space
switch twice
so at
singularity you are back to ordinary time space
identification. So
let's first just consider Schwarzschild
(uncharged, not
rotating). In
that case you are on the right track.
Reversing time and

coming from
the singularity, it pretty much looks like
a 2d big
bang scenario
(with the other 2d in a compact sphere).
Space expands out
until you
reach the horizon and eventually goes over
into flat
space.
It's not
really accelerated expansion but still
somewhat along
lines you
suggested.

If there are two horizons (charged black
hole case)
and you
are in
between them (we called this Whoville
because it looks
like space
has shrunk to zero but actually spacetime
has not and
there is a
finite time between them so there's a whole
world
invisible
to the
outside) what happens is you alternate
between big
bang and big
crunch in the full extended spacetime.

Jeffrey Epstein wrote:

Lisa . thanks,, for your time,and
patience if i
understand the
Kerr equations , and your explanation
correctly , time
and space
appear to exchange coordinates , inside
a black

hole. ,
that
assumes that time is unidirectional.
doesn't it appear
that if
you ran negative time , it would look
like any other
explosive
transaction. great acceleration.
emanating from
the second
horizon outward slowing to a mere
expansion . It
would
appear
that " time" got shot out of the black
hole.
created by a
space
collapse at the singularity.

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