

From: Lisa Randall [REDACTED]
To: Jeffrey Epstein <jeevacation@gmail.com>
Subject: Re:
Date: Sun, 04 Oct 2009 18:30:43 +0000

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]
> 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] 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] 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



> 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:
> Schwarzschild, 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

