Re: Who will stun the world as next Einstein?

Source: http://sci.tech−archive.net/Archive/sci.physics/2005−02/1816.html

---

From: Ken S. Tucker (*dynamics_at_vianet.on.ca*)
Date: 02/03/05

Date: 3 Feb 2005 15:11:37 −0800

Tom Capizzi wrote:
> This is the complete text of your last post. Is something missing?

I don't know, sometimes google seems to send an
echo or doesn't post at all. It's a new system
the're trying and figured I'd see how it evolves.

> "Ken S. Tucker" <dynamics@vianet.on.ca> wrote in message
> news:1107384256.335012.211010@z14g2000cwz.googlegroups.com...
> >
> > Tom Capizzi wrote:

> >> > Perhaps I was not clear.
> >> > A scalar is an invariant ok?
> >> > An invariant is not necessarily a constant ok?
> >> > Denote "A" to be such a variable invariant.
> >> >
> >> > Then dA/dt =/= invariant because dt is not
> >> > invariant and hence dA/dt is not a scalar.
> >> >
> >> > Something that's interesting though, is the
> >> > relativistic fact that dA/dt is not a scalar.
> >> >
> >> > Maybe that's a good way to present dt as being
> >> > a vector component, specifically with ct=x^0,
> >> > then, dA/dt == dA/dx^0, and is also a vector
> >> > component, but not a scalar (invariant).
> >> >
> >> > I just wanted to caution a derivative only
> >> > in special cases produces a scalar, and
> >> > certainly not generally in physics.
> >> > Regards
> >> > Ken S. Tucker
> >> >
> >> Interesting semantic quibble. I use the definition of scalar
> >> as an entity with magnitude but no direction, and a vector
> >> has both. To require a scalar to be an invariant is overly
> >> restrictive, but I won't rule out the possibility that this is

> >> customary usage in some circles. However, your argument
> >> above is invalid because d/dt is not a component of the
> >> Grad operator. Grad is a spatial vector derivative. And it
> >> is a vector. The derivative of a scalar apparently may or
> >> may not be a scalar (in the restricted sense of the word),
> >> but it is never a vector.

It's a semantic quibble.

>>I am curious what you call an entity
>> with magnitude and no direction that is not an invariant.

It's a "relative tensor" such as
the determinant of g_uv, g=det g_uv.
Ken