

Re: Is vacuum not empty?

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- *From:* milibar <wed492@xxxxxxxxxx>
 - *Date:* Tue, 1 Jul 2008 13:29:17 -0700 (PDT)
-

On Jul 1, 9:53 pm, dlzc <dl...@xxxxxxxx> wrote:

Dear Dredd:

On Jul 1, 12:24 pm, Dredd <wed...@xxxxxxxx> wrote:

On Jun 30, 12:48 am, "N:dlzcD:aol T:com \((dlzc\)" <dl...@xxxxxxxx>

"Dredd" <wed...@xxxxxxxx> wrote in message
news:d07af971-2417-4116-8bf4-3272b1057034@xx

...

If
vacuum
has
both
permittivity
and
permeability,
than
that
implies
directly
that
you
can

1.
Magnetize
vacuum
–
follows
that

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vacuum
becomes
a
permanent
magnet

No.
You
can
magnetize
vacuum,
by
storing
energy
in
it,
but
it
does
not
stay.

Sir,
permeability
means
magnetizable

Does not mean it has to stay
magnetized.

while permeability stays constant, I cant
see why they not should stay magnetized

2nd law of thermo. When is the last time
you saw a photons stand still...

By vacuum I meant completely empty, without
any photon inside

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In QM, magnetism and E-field are produced by virtual photons. So if the space is empty, it will have neither form of energy if it is empty of photons. Granted, this is one model, but if you shoot a test particle through this "empty space" it will interact with the stuff outside of the space that is making the field.

follows that
a large
portion of
vacuum
may
act like a
large
permanent
magnet

It does not follow, unless
you want to say
"instantaneously".

but according to relativity there are not
instantaneous things out there

No, it says no such thing. An instant is
merely a time-slice, a single "now". A
conceptual tool.

Then feel free to explain your instantaneous

I just did.

Instantaneous regarding to what?

Instantaneous, as opposed to "what happened on my summer vacation", or
"for the six seconds that the particle stream was incident on the area
of interest".

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Sir, you just named instantaneous events which are not single

happened – summer vacation

six seconds – particle stream incident – area of interest

You cant have a instantaneous which is single

single... what? Do you mean you must "integrate over some long period of time"?

Not sure, I suppose we need at least an observer in order something occurring instantaneous

2.
Vacuum
is
a
dielectric
–
follows
that
vacuum
becomes
a
capacitor
storing
charges

Only
for
a
short
time.
But
to
keep
similarity

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with
your
"1.",
[you]
should
say
that
you
can
apply
a
static
electric
field
across
it.

So vacuum
is a
capacitor
with
charges in it

follows that
vacuum is
not empty

No. You have stipulated that
it is empty.
Therefore, if follows that
what you find in
the box, is more-or-less
some part of the
Universe.

yes, it must be

Kind of explains how the observer is always
part of the observed, doesn't it?

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How
can
you
do
all
that?

Charge
motion.

what
motion, you
mean static

Not for magnetism. Not to
create the
charge separation.

what charges are we talking about?

For your E-field, or "voltage", your
"capacitor storing charge"
required charge motion.

How
can
you
have
a
magnet
when
you
dont
have
any
magnets

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Charge
motion.

a permanent
magnet has
a static
magnetic
field

There **is** charge motion in
"permanent magnets".
Look into "magnetic
domains".

you mean orientation, not motion, right?

there are nothing in motion inside a magnet
bar

<snipping link that Google breaks on reposting>

... now consider how many magnets are made
of non-conductors. Recall that conductors
place "free" electrons in conduction shells.
Magnetic domains do allow charge motion
within the domain.

Are you so sure of your statement?

Are you suggesting that free electrons are
in motion through a permanent magnet bar?

[You know, when you think you smell blood in the water, your English
improves. I do wish you felt "safe" in being who you really are.]

I think within the domains (grains), yes. You can apply a rapidly

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changing magnetic field, and severely heat a permanent magnet, much more than say a conductive plate. Hard to do that without charge motion "somewhere"

Bur Sir, this is the point.

I see vacuum rather as a permanent magnet, with no need for motion around it.

...

In the Universe. Potential (voltage) is a macroscopic term, so only means something in the Universe.

Here is one for you. Probably to be announced soon (if not already). A fellow at LANL induced rapidly changing magnetic fields in a vacuum, and simulated gamma ray bursts with rapidly changing magnetic fields, fields changing so fast that the charges "must" have been moving FTL. Gamma rays elicited from "empty space". Only those spaces were filled with magnetic field energy, which is not "nothing". Quantum mechanically, charge is an interchange of virtual photons, and such an experiment makes them "real". (Whatever that is.)

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There is no such thing as empty space. Not necessarily because of some aether, but because there is no separation in this Universe... only "distance".
Y

While I can see the macro aspect of the problem, I cannot really see what charges are we talking about

You mean particle anti particle, aka fermions antu fermions?

We are only talking about "charge" in its generic sense. You spoke of charging capacitors to elicit a field, this usually involves motion of electrons.

Only when it gets charged, till gets in steady state

Similarly, vacuum is already charged, I cant see any motion anywhere

I don't see that is charged. I push a test charge through it, and the test charge continues "straight".

I mean, if it has dielectric properties it must be already charged, otherwise it makes not much sense having a dielectric which is not charged with anything.

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Only potential, for sure, potential is
not motion

Some is... say a rotating gyroscope. As a black box, potential energy
is available. That it is kinetic within the box... well that is much
like "magnetism", except that charge motion does not have to be in the
"black box"....=

You need opposite particles in order to
annihilate each other. And if I understand
it right when they meet they do explosions.

Annihilation is separate. Do we need to get
into that now? You might look at
"positronium" if you think they only explode.

I cant see any explosions in vaccum

Quite a well known phenomenon: "spontaneous
pair creation".
Google...
"spontaneous pair creation" site:.edu

How do they annihilate in order to
disappear as your say "instantaneously" ?

How do they exist in the first place, if
there is no separation (only distance)?

At distance but not separated?

How about that?

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Man, I can't raise a mystery and get words from you? ;>)

How about this, we talk about the distance between the mean of a statistical data set, and its standard deviation. Or (more to the point) between the means of two different data sets. Is distance only a statistical measure, with the "actual, real" particles in fact smeared across the "solution set" we call spacetime. This makes for "distance", but no separation.

I can't really digest this one

You mean different datasets that are not separated?
This implies a single dataset with distinct separate means standard deviations

An impossibility

Thanks for keeping it friendly...

What do you mean, thank you for the explanations, which I would like to understand

Your words can be the last, unless you have questions.

David A. Smith

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