

Re: Since k varies but not G suggests an Eather

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Source: <http://sci.tech--archive.net/Archive/sci.physics.relativity/2006-06/msg01344.html>

- *From:* "guskz@xxxxxxxxxxxx" <guskz@xxxxxxxxxxxx>
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-

Randy Poe wrote:

guskz@xxxxxxxxxxxx wrote:

Well according to Randy in another thread k in $F = k Qq/r^2$ remains the constant permittivity of space

Yes.

Your words from another thread:

" The electrostatic force felt by a particle q in a medium....using the standard, unchanging value of k."

But the link below specifies that "k" does vary with the medium for ELECTROSTATIC FIELDS?:

http://www.plus2physics.com/electrostatics/study_material.asp?chapter=2

Electrostatic field: (The electric field strength is $E = k Qq/r^2$)

Quote:

"Lines of force are a convenient way of visualizing an electric fieldThe total number of lines of force is inversely proportional to the ***PERMITTIVITY (thus k) OF THE MEDIUM**** in which the charge is located."

REGARDLESS of which medium it's in,

Perhaps you've forgotten that "medium" is just an approximation, and at the microscopic level a medium consists of isolated atoms with pure vacuum between.

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I
find that illogical (why would the velocity decrease due to
permittivity

Perhaps that's because you've forgotten that the idea of
"velocity decreasing" is just an approximation, and that what
happens at the microscopic level involves energy traveling
at c , the vacuum speed, in vacuum between isolated
atoms.

but not the force of a charge.....especially since the
main difference between mediums is the charge density)?

No, that is not the main difference between mediums. Mostly
our discussion of dielectric materials involves neutral
media, i.e. charge density = 0.

– Randy