the general science journal

Electromagnetic Waves

António Saraiva – 2009-08-14
ajps2@hotmail.com

See Unified Absolute Relativity Theory at:

http://www.wbabin.net/saraiva/saraiva105.pdf
http://www.wbabin.net/saraiva/saraiva223.pdf

In older textbooks the electromagnetic waves have 90º of phase variation between electric and magnetic fields.

Now the physicists say that they are in phase.

Why?

It's obvious that the fields must be in quadrature to keep the constancy of energy. Like all other waves the energy oscillates between two types of energy.

The reason they insists that they are in phase is because they use this new equation for the wave to be more quantum-mechanics:

Electric field:

$$E = E_0 \exp[i(kx - \omega t)]$$

And $$-\frac{dB}{dt} = \frac{dE}{dx}$$

Magnetic field:

$$B = -\int_0^t \frac{dE}{dx} dt$$

$$B = \frac{k}{\omega} E_0 \exp[i(kx - \omega t)]$$

$$B = \frac{1}{c} E_0 \exp[i(kx - \omega t)]$$

According to this equation the fields must be in phase.

So, this equation is wrong.