Re: Bell's inequalities too restrictive reopen doors to hidden variables

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- *From*: RP <no_mail_no_spam@xxxxxxxxx>
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Wai Yu Wong wrote:

> On 11 Mar 2005 09:55:40 −0800, akalaniz@xxxxxxxxxxx wrote:
>
> > I couldn't find the paper (but it's out there) that argues that it may
> > be experimentally impossible to rule out hidden variable theories.
>
> I think the following experiment rules out hidden variable theory:
>
> Photons of random polarization are made to pass through a polarization
> filter. A second polarizing filter is placed some distance behind the
> first one, with plane of polarization at right angle to the first
> one's. As expected, no photons emerge from the second filter. Now
> insert a third polarizing filter between the first two, and plane of
> polarization midway between the first two. Strangely, some photons
> manage to pass through all 3 filters.
>
> I cannot see how hidden variable theory can account for the above
> result.

There is nothing hidden about the variables other than an understanding of classical em.

The B field strength of the source, wrt some moving charge, is proportional to cos_theta (angle between field and motion of charge. The first filter nulls the y component of the field, which leaves the exiting field vertically polarized, providing the illusion that the filter only passes given photons with the correct polarization while reflecting or absorbing the remainder. The polarizer accomplishes this 100% polarized output however via electrons that are limited to oscillation within a crystalline plane. In this classical description the B field's strength is reduced upon exit rather than the number of photons being reduced; the electrons produce a secondary field that superposes over the incident field with a net torquing effect via superposition of fields and a resultant partial cancellation of the first.

The emerging field will not pass through a second filter oriented at 90deg wrt the first because the nulling field perfectly superposes over the incident field producing 100% cancellation.

If a third filter is introduced between these two, at 45 deg wrt both, then the nulling field produced by this intermediate filter only partially cancels the incident field, because again the B field exerts force on charges as a function of cos_theta.

cos90 = 0 -- second filter in two filter system 90deg wrt incident 100% polarized radiation, no non-nulled component remaining, light completely blocked in this two filter configuration.

cos45 = 0.7071 -- intermediate filter in three filter system 45deg wrt incident 100% polarized radiation, remaining non-nulled component passes through, resultant torqued B field is reduced in strength wrt incident field along the polarization angles of the two respectively.

With the three filter configuration the situation is identical between the last two filters as with the first two, the energy is reduced, and the polarization torqued another 45 deg, for a total of 90 deg torque of the field between first and last filters. Output field is twice reduced in strength wrt waves incident on second filter, and twice torqued.

Richard Perry

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