Re: magnetic monopoles

Source: http://sci.tech−archive.net/Archive/sci.physics/2005−08/msg04593.html

- *From*: "Ken S. Tucker" <dynamics@xxxxxxxxxxxx>
- *Date*: 30 Aug 2005 23:13:17 −0700

Hi Timo, thanks...

Timo Nieminen wrote:
> On Wed, 30 Aug 2005, Ken S. Tucker wrote:
>
> > I start with a 2" que ball and drill in 1/4" dia
> > holes a 1/2" deep, spaced a 1/2" apart and place
> > into those holes cylindrical bar magnets with N
> > pointed out. I could do the same using S pointed
> > out.
> >
> > Irrespective of the orientation of those balls on
> > a pool table the N's will repel the N's and the
> > N's will attract the S's, but by the 1/r^3 rule.
>
> This might leave you with 8 magnets around the equator, one at each of the
> physical poles, and maybe 4 in each of the mid−latitudes.
>
> I predict a field that falls off as 1/r^7 (at long distances, anyway)
> since you'd have approximately a 2^5 pole source. (What would the
> force between two 2^5 poles be, and how would it depend on the
> orientation? Sounds like something best left for students ...)
>
> With 1 magnet you have a dipole (a 2^1 pole), with 2 holes on opposite
> sides with magnets, you'd have a linear quadrupole, a 2^2 pole, with a
> 1/r^3 potential, and therefore a 1/r^4 field.
>
> A row around the equator gives you a 2^3 pole, with 1/r^4 potential, and
> 1/r^5 field.
>
> The general formula being 2^n pole, with 1/r^(n+1) potential, and
> 1/r^(n+2) field, where n is the number of rows of magnets from pole to
> pole, counting magnets at the poles as well. Each pair of rows you add
> increases n by 2.
>
> In the limit of the sphere become infinitely densely packed by skinny
> magnets, n goes to infinity, and the external field vanishes.

Ok, suppose I defer to you're analysis, seems reasonable

at the limit, but with the caveat, a sub−atomic particle
can't let n=>oo but ok.

Let's use a hockey puck, i.e. a 2D disk, you know
like playing air hockey. Can we create a puck that
has a N−pole on the circumference (or S−pole)?

So instead of a sphere, I magnetize segments
of a disc and then glue them together.

Here's my angle, can I create a monopole in 2D?

Oh, please allow the segments to be less than
infintesmal.
Ken

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- ***References***:
  - ***magnetic monopoles***
    - ◊ *From:* muser
  - ***Re: magnetic monopoles***
    - ◊ *From:* RP
  - ***Re: magnetic monopoles***
    - ◊ *From:* Autymn D. C.
  - ***Re: magnetic monopoles***
    - ◊ *From:* RP
  - ***Re: magnetic monopoles***
    - ◊ *From:* Ken S. Tucker
  - ***Re: magnetic monopoles***
    - ◊ *From:* RP
  - ***Re: magnetic monopoles***
    - ◊ *From:* Ken S. Tucker
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    - ◊ *From:* Timo Nieminen

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