Re: n − charged particles

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- *From*: Phil Carmody <thefatphil_demunged@xxxxxxxxxxx>
- *Date*: 01 Apr 2007 11:14:06 +0300

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quasi <quasi@xxxxxxxx> writes:

> On Sat, 31 Mar 2007 22:24:49 +0100, David Hartley <me9@xxxxxxxxxxx>
> wrote:
>
>> Try n=21. I'm fairly sure it has no rotational symmetry, but haven't
>> ruled out reflections yet.
>
> No, there _is_ symmetry for n=21. In fact, there are 3 non−trivial
> symmetries −− a rotation and 2 reflections, just like the symmetries
> for n=13.
>
> symmetry #1 (180 degree rotation about point 20):
>
> map 20 −> 20, 8 −> 10, 11 −> 14
>
> symmetry #2 (reflection about the plane through the points
> 4,5,13,15,19,20,21):
>
> map 20 −> 20, 8 −> 11, 14 −> 10
>
> symmetry #3 (reflection about the plane through the points
> 2,3,7,9,12,17,20):
>
> map 20 −> 20, 8 −> 14, 11 −> 10)
>
> Each of the planes above has 7 points on the plane and 7 points on
> each side. This suggests an analogous symmetrical construction for any
> multiple of 3. In fact, I believe I can prove that for any composite n
> which is not a power of 2, there is at least one stable equilibrium
> with a non−trivial symmetry.
>
> As to the question of whether every stable equilibrium has a
> non−trivial symmetry, you must admit that the evidence for the truth
> of that claim is looking stronger. I even have some tentative ideas as
> to how that might be proved but they're too sketchy to discuss at this
> point.

I'm prepared do hallucinate that there exists one symmetry.
I think my seeding logic will fail when one tries to find
a minimal counter example, so none exists.

Phil
−−
"Home taping is killing big business profits. We left this side blank
so you can help." −− Dead Kennedys, written upon the B−side of tapes of
/In God We Trust, Inc./.
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