Subject: Re: Are the field lines the trajectory of a particle with mass M?
Posted by James Kuyper on Mon, 15 Mar 2004 22:45:17 GMT
View Forum Message <> Reply to Message

Surendar Jeyadev wrote:
>
> In article <405481EF.6359E0DA@saicmodis.com>,
> James Kuyper <kuyper@saicmodis.com> wrote:
...
> G. K. Batchelor. There are three kinds of lines you need to worry about.
>
> 1. Streamline: A line whose tangent is everywhere parallel to the
...
> 2. The Path Line (or simply Path): This is just the path traced by a
...
> 3. The Streak Line: The line along which lie all those fluid elements

I should have specified that I was talking about steady-state fluid flow. I was trying to point out one case where field-line and trajectory were the same thing, before explaining why that's not true in general.

...
> Electrodyanmics should have some coverage. These problems are much more
> fun when relativity comes in :-)

Especially when you throw in general relativity in strong gravitational and electrical fields. :-) Geons are a particularly extreme example: a ball made up entirely of photons which are moving in circles because, and only because, of their mutual gravitational attraction.