Re: einstein@home

Source: http://sci.tech−archive.net/Archive/sci.physics.relativity/2005−04/msg00439.html

- *From*: "Curt" <curt2@xxxxxxxxxxxx>

- *Date*: Wed, 06 Apr 2005 07:01:21 GMT

Hi there,

thank you very much for the reply; you've answered all my questions. I've been thinking about getting that book by Kip thorne, I think i definitely will do so now. To be honest the bit about "multipoles" confuses me a little; I'm currently doing AS−level physics in the UK, and have not come across these terms so I've just done a few web searches. Most of the sources actually don't explain with anything less than high level maths; don't get me wrong, I love maths, but this stuff is way over my head!

As a guess, does it have something to do with the fact that electromagnetism fluctuates from positive to negative, north to south (very classical, but it helps me visualise it) ie it has two "poles", whereas gravity does not (or does it?). If I were to be hit by a massively powerful gravitational wave (absurd, but bear with me) what would I experience? A 'push' or a pull? What is the wavelength of the gravity waves you are trying to detect? Sorry if most of these questions seem naive, but you've got me genuinely interested.

Thanks for your time,

Curt

<carlip−nospam@xxxxxxxxxxxxxxxxxxx> wrote in message
news:d2ulmdnfr1@xxxxxxxxxxxxxxxxxxxxx
> Curt <curt2@xxxxxxxxxxxx> wrote:
>
>> I recently signed up to that 'Einstein@home' project; I don't know how
>> many of you have heard about it. For those who don't know, it's a large
>> volunteer network of computers analysing data from various gravity wave
>> detectors worldwide.
>
>> Has there been any definitive evidence of gravitational waves thus far?
>
> No, though to some extent it depends on what you count as a detection.
> According to general relativity, a binary star system should lose energy
> to gravitational radiation at a calculable rate, and this should show up
> as a gradual orbital decay. This has been observed in three separate
> binary pulsar systems, with a decay rate exactly equal to the prediction.
> (Hulse and Taylor won the 1993 Nobel Prize in Physics for the first such

> discovery.) This gives some very strong indirect evidence of
> gravitational
> radiation −− any alternative explanation would have to explain not only
> why the observed orbits are decaying, but why the rate, and the change in
> the rate over time, exactly matches the predictions of general relativity
> −− but it's not direct detection.
>
>> If not, why are they so difficult to detect