

Why are theories of crackpots, the self-claimed physicists who lack proper physics education, wrong and useless?

Those of you who know some history of astronomy will know that geocentrism, the idea that the Earth is at the center of the universe, had been widely believed before Copernicus argued that the heliocentrism, the idea that the planets and the Earth rotate around the Sun, was correct. Then, one may wonder what makes the planets and the Earth rotate around the Sun. René Descartes, the French philosopher, famously known for "I think, therefore I am" came up with the "vortex theory." According to this theory, the universe is filled with matter, which whirls about the Sun. Descartes argued that the planets move as they are pushed along by this matter.

Sounds plausible. Doesn't it? However, Isaac Newton pointed out some problems with this model. According to this model, the planets must converge to the Sun, when enough time has elapsed. Think of a small object in a cup of coffee. If you whirl the coffee, by spoon, the small object begins to rotate together but eventually converges to the center. As an alternative to Descartes' theory, Isaac Newton suggested the universal gravitation according to which every object attracts each other with force proportional to the product of the mass of the objects that are attracting each other, and inversely proportional to the square of the distance between them. Initially, there was a criticism on Newton's theory because Newton never explained why such force, i.e., gravitational force, existed. However, this criticism disappeared, because Newton's theory fit the observational and the experimental data perfectly well for almost two centuries.

Then, Albert Einstein came up with good reasons why gravitational forces existed, and about a century still later, Erik Verlinde came up with a different mechanism that explains the gravitational force by replacing Einstein's theory. (However, this is not to say that the reasons Einstein came up with were totally "wrong" or useless. Read our articles, "Did Einstein really prove that Newton was wrong?" and "Fermat's principle and the consistency of physics.")

A high school student once sent me an email saying that s/he had a very nice idea. S/he claimed that s/he could explain why an electron can have angular momentum, while it is not rotating. I didn't explain to him/her in detail what was wrong with this theory. Instead, I wrote him/her that s/he would understand what was wrong with his/her theory once s/he learns freshman college physics, which means that s/he had to study physics hard.

If you read our earlier article "Did Einstein really prove that Newton was wrong?" you would understand that, without understanding Newton's theory of universal gravitation very well, Einstein would have never come up with general relativity which replaced Newton's theory, because general relativity has to be able to first explain every phenomenon Newton's theory can successfully explain, as Newton's theory had been already tested up to very high accuracy. The same can be said about

Verlinde's emergent gravity that replaced Einstein's general relativity. It first needed to and did explain Einstein's general relativity, before new predictions could be tested.

The problem with the high school student was that he didn't know why physicists came to the conclusion that an electron has the angular momentum, while it is not rotating. To be able to make a new, successful theory, you have to first know the theories well that you are going to replace, as these theories are well-tested and experimentally confirmed, even though they may be "wrong." (In the sense that Newton's theory was "wrong.") Your new theory must make the same experimental predictions as the ones the theories you are going to replace have successfully made. When the new experimental predictions that the old theories could not make are confirmed, your theory will be proven.

Descartes made a wrong model, but he had an excuse, because the "correct" theory, namely, Newton's theory of universal gravitation, which confirmed observational data, was not yet known. One can come up with any model before a correct theory is confirmed. Moreover, before Newton founded physics, scientists didn't have the strong notion that a correct theory must make the correct quantitative experimental predictions, not just qualitatively. At the time, Descartes' model seemed to be a good model, because it sounded plausible, even though it could not predict the correct values. The high school student also had an excuse because s/he was so young that s/he was naïve. However, if s/he were a sophomore in college, and made the same proposal, s/he would not have an excuse, because it shows that s/he neglected his freshman physics course.

The problem is that many, indeed, many crackpots, among them, some renowned philosophers, suggest wrong theories, because they neglected their study, believing that the old theories that they should have studied in universities and graduate schools are not important, as they think that their theories are going to replace them anyway. When they are asked whether their theories can reproduce the previous experimental predictions that are already explained quantitatively perfectly well by the old theories, they are always vague or arrogant about their answers. They can never show us their calculation, but simply claim that their theories make the correct experimental predictions, not realizing that correct experimental predictions mean that the predicted values and the experimental values agree, not just qualitatively, but quantitatively. Just like the flat-earthers, who cannot correctly predict the altitude of the Sun and the Moon, the date and hour of solar eclipses and lunar eclipses, or cannot even agree on the distance to the Sun and the Moon among themselves, they claim that their theory can explain everything. They also persist that the old theories are wrong anyway, even though they make the correct experimental predictions, because they cannot understand them themselves. (Here, the word "wrong" is *not* used in the sense that Newton's theory was "wrong.")