**Essay**

# Is the Universe Immaterial?

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**ABSTRACT**

As the total matter of the universe is zero, so can we not say that the universe as a whole is immaterial?

**Keywords:** Universe, immaterial, zero energy, positive energy, negative energy.

We already know that the total energy of the universe is zero. We also know that matter and energy are equivalent. From these can we conclude that the total matter of the universe is also zero? Stenger thought so and stated when asked "where did all the matter come from?" [1]:

> $E=mc^2$ says matter and energy are the same entity. Since E=0, the total matter of the universe is zero. Zero does not have to come from anything.
>
> Now, if by matter you just mean the equivalent of rest energy, then that came from gravitational energy during the expansion in the early universe.

But not everyone thinks so and there are other voices also. According to them, it cannot be said that the total matter of the universe is zero simply because its total energy is zero. Actually, matter in the universe counts for positive energy and gravity counts for negative energy. So when we add this positive energy of matter with the negative energy of gravity, we arrive at a total energy of zero for the universe. But matter in itself has a non-zero value in the universe.

So I think the whole issue needs re-examination.

I think I have already made the point clear that the beginning of the universe will always mean that it will begin from zero space, zero time, zero matter and zero energy [2]. Therefore, the total space, total time, total matter and total energy of the universe should also always have to be zero, because nothing in the universe can come from outside. So, if the universe has a beginning, then its total matter will obviously be zero. This is as per logic.

Now, we can also give scientific reason as to why the total matter of the universe will have to be zero.

How is the zero total energy of the universe arrived at? Here matter is treated as positive energy and gravity is treated as negative energy. When we add this positive energy of matter with the negative energy of gravity, we get zero total energy for the universe.

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But energy cannot be directly deducted from matter. Neither can matter be directly deducted from energy. We will have to bring both of them into the same category before making any such addition or subtraction. We will have to convert either matter into energy or energy into matter. In the above case matter has been converted into energy and this energy is treated as positive energy. From this positive energy negative energy of gravity is subtracted.

Now instead of converting matter into energy, if we convert negative gravitational energy into matter, then we will get negative matter. If we now subtract this negative matter from the positive matter, then we will arrive at the total zero matter of the universe.

So both from the point of view of logic as well as from the point of view of science we can say that the total matter of the universe is zero.

Actually if we say that the total energy of the universe is zero and if matter and energy are also equivalent, then why can we not say that the total matter of the universe is zero?

As the total matter of the universe is zero, so can we not say that the universe as a whole is immaterial?

## Reference

1. Positive atheism quotes of Victor J. Stenger, http://www.positiveatheism.org
2. http://scigod.com/index.php/sgj/article/view/543/586