

## EDITORIAL

### *Multiverse, time and our 'Divine Comedy'*

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In this issue of EJST we have a bunch of very interesting articles. These articles and a discussion that I had with my younger daughter, Ioana, have stimulated me to write this editorial. As you'll see, some of them deal with Physics, mostly with Quantum mechanics [1-3].

I am a chemist and I use to teach as main subject Inorganic Chemistry. Teaching Inorganic Chemistry starts with some lectures about the structure of the matter and then, on this basis, continues with the physical/chemical properties of the elements and substances. Actually, the structure of the matter, from this curriculum, is explained based on Quantum mechanics. So, even if we are not physicists and even more not experts on Quantum mechanics we need to know a little bit of it in order to understand its applications in Chemistry.

The first lecture starts with the wavefunction of the electron and Schrödinger's equation. Is quite difficult making the students, especially those without a solid background in Physics, to understand with this part. "We thought that we are at the Faculty of Chemistry, not of Physics", they use to tell me. Therefore, I have to use examples in order to help them. "Most of you are not from this city. Does your mother know where you are now?" I ask. "At school, in the campus, they answer". "Yes, but where exactly? Some of you might be in your bed from the students' accommodation because is difficult to wake up in the morning, some in the pub of the campus having a coffee (or something else) and some are coming to attend my lecture. Is for sure that you are in the campus – the probability is equal with one – but is not sure where in the campus. So, your mother has to come with some relatives to look for you in order to find you. And they have to do it systematically. Similarly, how can we mathematically search the electron in a box? You need a sharp knife to cut systematically the entire box and finally you'll find it - is there. The mathematic knife is the integral of volume and the result is the certitude that the electron is there." My students are usually satisfied with this example and maybe after classes they also visit the campus pub in order to celebrate with a beer the effects of Quantum mechanics on their freshmen life.

About twenty years ago I went to my first conference on Science and Theology, organized by ESSSAT in Lyon (France). There I had the opportunity to meet many very intelligent and open minded scientists and theologians. With this occasion I asked a physicist: "What is with this multiverse theory?" "Oh, is quite simple" I was told. "It was developed in the 60's by a physicist named Everett. You know the theory with the electron, the box, the volume integral." "Yes", I replied. "Now think that there is not only one box but several of them.

The electron might also be in the other boxes too. And if you apply a multiple integral the final result of the probability function is also one. So, mathematically speaking the hypothesis seems right but the experiment didn't prove it yet." Then, I realized that some of my students might not necessarily be in the campus pub but over the street in another pub which doesn't belong to the campus – which is a totally different universe... or not?

Passing over the joke, the situation is much more complicated. Stephen Hawking, which I think is an excellent professor, says that the possible universes might be very different one from another. Might have different Physics laws, might sustain or not life, etc.

Now, let's pass to the second subject of the editorial – time. Hawking also makes a description of time in his books. And he says that from the point of view of Quantum mechanics not only the future may be regarded as a 'black box' but also the past. Interesting...

This year I was (again) in Rhodos (Greece). The protector saint of the island is Saint Phanourios [<http://orthodoxwiki.org/Phanourios>]. The saint is considered in the tradition the one which brings back things, even persons that you have lost somehow. Due to my scientific manner of thinking and because I am a faithful, I verified this and it seems that it works.

However, he was not known to be a saint (according to the existing documents) prior to the year 1500 AD, when it was discovered his icon. According to the images from that icon, his martyrdom happened during the Roman period. So, he was initially celebrated as a saint, then he was forgotten and afterwards he was rediscovered. Is just like the 'black box' of Hawking's 'past' – depends on the observer. Interesting once again...

Professor Galán, notes in one of his articles [5] that "Einstein raised the problem of the sense of time in human beings, and especially children, to Piaget, since one of his objectives was to unravel, in Physics, the nature of time". Strange... Why, would Einstein be interested on Piaget's work? I realized why being in Rhodos (maybe Saint Phanourios has his role on this). Hawking says that we live in the continuum space-time which has four dimensions (time being one of them), but theoretically there might be other dimensions that we don't perceive.

I saw on Rhodos' beach little children which didn't need this fourth dimension – time. They had anything they need – to eat, to enjoy, love. Time was not necessary for them. I remembered how I learned about time (and some of my friends confirmed the same). When I was about four years old I used to look from time to time to a clock we had in the house and ask my mother what time is it. Finally I understood it.

In Rhodos, being in a touristic resort – I had anything I want – food, drink, entertainment – I needed just three dimensions. The fourth one – time – was just to remind me how many days I still have to stay there... which was not very comfortable. It seems that we need this dimension only to work...

I always considered that the most difficult to understand part of Dante's 'Divine Comedy' is the Paradise. How could I understand that happiness that everybody being there have? It was so until being in Rhodos – if we have anything we want we don't need this dimension (time). However, 'Inferno' doesn't need this dimension too... Only the Purgatory needs it.

Now, I come back to the multiverse. As I told you, my fourteen years old daughter Ioana inspired me on writing this editorial. She likes literature. She uses to spend most of her money on buying books, mostly novels. I thought that is normal for her age but one day she told something that amazed me. "Father, I read many novels and I realized that each character creates his own universe. Each one, not only sees the world by his own eyes but also tries to create his own universe, which is similar but not the same with the others universes. I think that is like in our world. Therefore, why do we need Everett's theory? We don't have to search for parallel universes – they are all here!" If true, it seems that we really have a multitude of universes but also interacting with each other.

However, the universes of those thinking, conceiving, developing revenges, conflicts, terrorist attacks, wars - in order to make the world 'a safer and/or a better place' – as they say, or even in the name of GOD (!) looks like Inferno. Unfortunately, these universes are also affecting the others...

As you know we use to appear with our journal a couple of months before the actual date written on the cover. So, despite that this is February issue, I take as usual this opportunity in order to wish 'Happy winter holydays' to all our readers, co-workers and supporters.

**Dr. Iulian Rusu**

## **References**

- [1] J. Sánchez-Cañizares, *Eur. J. Sci. Theol.*, **12(1)** (2016) 17.
- [2] S. Park, *Eur. J. Sci. Theol.*, **12(1)** (2016) 39.
- [3] S. Zorba, *Eur. J. Sci. Theol.*, **12(1)** (2016) 51.
- [4] J.G. Galán, *Eur. J. Sci. Theol.*, **12(1)** (2016) 5.
- [5] J.G. Galán, *Eur. J. Sci. Theol.*, **11(5)** (2015) 77.