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**International Multidisciplinary Scientific Conference on the
Dialogue between Sciences & Arts, Religion & Education**

**Speech title:
“THE BEGINNING OF THE
UNIVERSE AS EPISTEMOLOGICAL
FRONTIER - LEMAÎTRE TO GAMOW”**

Conference summary:

By PhD. João Barbosa

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It was in 1922, when Alexandre Friedmann proposed some models for cosmic evolution, that modern cosmology faced for the first time in a scientific way the problem of the origin of the universe. It was the inaugural step of the big bang cosmology (usually known as the Big Bang Theory), to which several important cosmologists contributed over the following decades. Among these cosmologists, there were two who played a special role: Georges Lemaître, who proposed the primeval atom theory, and George Gamow, who later assumed the hot and dense primordial state of the universe which contemporary cosmology continues to admit. In this paper, I present and compare the perspectives of these two great cosmologists towards the idea of the beginning of the universe as an epistemological frontier, that is, as an unsurpassable limit to the physical knowledge of the universe, namely with regard to an explanation of what caused this beginning and how the primordial universe had come into existence. Both cosmologists assumed that the beginning of our universe is located before everything that physics can achieve, but we can identify one important difference: according to Lemaître, the beginning of the universe is located before space and time, and we can admit that is an epistemological beginning and also an ontological beginning; according to Gamow, the beginning of our universe may have been the result of a preexistent cosmological state of the universe which is just inaccessible to physics, and therefore is not an ontological but just an epistemological beginning.

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