



Understanding how our universe works

Thanks to the existence of gravity, we know that the density of matter or energy in a region of space can be arbitrarily large. If a certain limit is exceeded, the matter contained in this region of space collapses and forms what is known as a black hole.

For years, understanding this phenomenon and all of its consequences has been an attractive subject of scientific research in physics. However, the currently available theories of gravity are insufficient in providing all of the answers to the existence of black holes. Moreover, recent astronomical observations of our universe indicate that there might be other fundamental problems with our current conception of gravity.

It is precisely due to these reasons that Dr. Rodrigo Aros, Director for the Undergraduate Degree Program in Physics of the Faculty of Exact Sciences at the Universidad Andrés Bello, is analyzing new additions to the Theory of Gravity.

“One of the greatest current challenges in high-energy and gravitational theory, my field of study, is explaining the expansion of the universe and analyzing the degree of validity for gravity as we understand it,” explains Dr. Aros.

Likewise, Dr. Aros adds that, “Presently, we know that the universe is in a period of accelerated expansion due to the existence of dark energy. One of the most ambitious objectives of my project is to try to provide an explanation for this dark energy in purely geometric terms.”

According to Dr. Rodrigo Aros, this is a strictly theoretical investigation, the scope of which would be difficult to understand for people without training in physics. However, the goal of this research is to explain part of the phenomena that have intrigued human beings for centuries and that underlay the functioning of the universe.

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