Chilean astronomer discovers method for calculating black holes' rotation

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Chilean astronomer Dr. Paulina Lira on Thursday made public the details of her recent research to develop a method for calculating the rotation of black holes.

Lira, a member of the Astronomy Department at the University of Chile, said that the research required 80 hours of observation of black holes using the Very Large Telescope located at the Cerro Paranal observatory in the South American country's desert Antofagasta Region.

The study, recently published in the British Monthly Notices of the Royal Astronomy Society, took a year and included the analysis of 40 black holes or quasars at the centers of distant galaxies, the light from which was emitted when the universe was just one-fifth its present age of 13.8 billion years.

Black holes are the densest concentrations of matter that exist, meaning that the mass contained within them is infinitely compressed and occupies a single point in space.

"Such a ... mass does not allow any object that's nearby to escape the gravitational field ... including light, which makes them completely black," Lira told Efe.

The Chilean astronomer said that black holes "are super simple objects that are characterized by their mass and their spin, the latter of which has been very difficult to be able to measure."

What Lira and her team did was to study the behavior of the incandescent material that is circling and preparing to fall into the black holes, which causes them to always grow larger.

The calculation of the rotation of black holes "allows us to understand how they have been growing (all during) the life of the universe and why they have come to have these gigantic masses," she added.

The study, entitled "Active Galactic Nuclei at z-1.5: I.Spectral energy distribution and accretions dics," is an analysis of the results obtained from studying 30 of the quasars.

"We still need to study that last 10. The idea is to expand the investigation to much larger samples, to know what more can be learned from them," she said.

Besides Lira, who holds a doctorate in astronomy from the University of Edinburgh, the astrophysical research team that calculated the rotation of the black holes was comprised of scientists Dan Capellupo and Benny Trakhtenbrot, along with Hagai Netzer, of Tel Aviv University. EFE