Applied Physics 2019: Challenge to the black hole model of quasars and active galactic nuclei - Qiuhe Peng - Nanjing University

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On our galactic centre an unusually strong radial magnetic field has been found near our Galactical Center. It is an important implication that the observed radiation from the GC cannot be emitted by the gas of the accretion disk due to accretion plasma fluid being hard to transfer across the magnetic field line by the Lorentz force. This is the first dilemma of the standard accretion disk model of black hole at the GC. The second dilemma is that the magnetic field with a lower limit of 8 mg near the GC is hardly produced by turbulence dynamo mechanism. Then author would like to talk about the strong radial magnetic field detected in the vicinity of the GC is consistent with the prediction from our model of supermassive object with magnetic monopoles. This is a strong evidence of both no black hole at the GC and existence of magnetic monopoles. Taking the RC effect (nucleons may decay catalyzed by MM) as an energy source, besides, we have proposed a unified model for many supernova explosion. In our model, the remnant of the distorted core of supernova is still a neutron star rather than a black hole no matter how huge of the supernova mass. That means black holes with stellar mass are impossible to be formed through supernova explosion. Query on the black hole models for other quasars and active galactic nuclei: The key dilemma of the black hole model is the question on the BH mass at the centre of AGNs.

The radiation from the BHs is due to accreting the material of accretion disk around the BHs. According to the Mach principle, the mass distribution of the universe (different redshifts) of the black holes formed in the early universe (with the number of black holes formed) was roughly the same. Through the accretion process, the mass of black holes could only increase continuously. If we assume that all quasars were born at the same primordial era, then the detected (observed) accreted mass of the BH through accretion disk (by the current theories of the accretion disk) should be took off. Then the mass of BHs in the lower redshift region would be very small or negative. However, the dilemma will disappear in our model of super-massive stars with magnetic monopoles. Black holes are objects so dense, and with such a lot mass, that even light cannot escape their gravity. The existence of black holes has been theorised for quite 200 years it’s impossible to watch them directly, and astronomers had no thanks to test their theories until Hubble arrived.

The high resolution of Hubble made it possible to ascertain the consequences of the gravity of a number of these objects on their surroundings. Hubble has also proved that super massive black holes are presumably present at the centres of most, if not all, large galaxies. This has important implications for the theories of galaxy formation and evolution. Black holes exist in several sizes. Stellar black holes, which are round the mass of our Sun, form when very large stars explode as supernovae at the top of their lives. The star's core collapses because the outer layers are blown away, leaving a little but extremely dense ball. Supermassive black holes, many times the mass of our Sun, are of more mysterious origin, and are found at the centre of galaxies it's within the study of super massive black holes that Hubble has made its biggest contribution. Before Hubble, quasars were considered to be isolated star-like objects of a mysterious nature. Hubble has observed several quasars and located that all of them reside at galactic centres.

Today most scientists believe that super massive black holes at the galactic centres are the "engines" that power the quasars. Prior to the launch of Hubble a couple of region candidates had been studied but the restrictions of ground based astronomy were such irrefutable evidence for his or her existence couldn't be obtained. Black holes themselves, by definition, can't be observed, since no light can shake them. However, astronomers can study the consequences of black holes on their surroundings. These include powerful jets of electrons that travel huge distances, many thousands of sunshine years from the centres of the galaxies.

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