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The evidence of magnetic monopoles by astronomical observation and its astrophysical implication

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A) A key observation has been reported in 2013 (Eatough et al., 2013): an abnormally strong radial magnetic field near the GC is discovered. Firstly, we demonstrate that the radiations observed from the GC are hardly emitted by the gas of accretion disk which is prevented from approaching to the GC by the abnormally strong radial magnetic field and these radiations can't be emitted by the black hole model at the Center. However, the dilemma of the black hole model at the GC is naturally solved in our model of a supermassive object with magnetic monopoles (MMs) (Peng and Chou 2001). Three predictions in our model are quantitatively in agreement with observations: It could be an astronomical observational evidence of the existence of MMs and no black hole is at the GC.

B) Besides, making use of both the estimations for the space flux of MMs and nucleon decay catalyzed by MMs (called the RC effect) to obtain the luminosity of celestial objects by the RC effect. In terms of the formula for this RC luminosity, we are able to present a unified treatment for various kinds of core collapsed supernovae, SNII, SNIb, SNIc, SLSN (Super Luminous Supernova) and the production mechanism for γ ray burst. The remnant of the supernova explosion is a neutron star rather than a black hole, regardless of the mass of the progenitor of the supernova. Besides, the heat source of the Earth's core, as well as the energy source needed for the white dwarf interior, is the same mechanism of the energy source as a supernova. This unified model can also be used to reasonably explain the possible association of the shot γ ray burst detected by the Fermi γ ray Burst Monitoring Satellite (GBM) with the September 2015 LIGO gravitational wave event GW150914.

C), We propose that the physical mechanism of Hot Big Bang of the Universe is also nucleons decay driven by the magnetic monopoles, similar to the supernova explosion.

Biography

Qiuhe Peng is mainly engaged in Nuclear Astrophysics, Particle Astrophysics, and Galactic Astronomy research. In the field of Nuclear Astrophysics, his research project involved a neutron star (pulsar), the supernova explosion mechanism and the thermonuclear reaction inside the star, the synthesis of heavy elements and an interstellar radioactive element such as the origin of celestial 26Al. In addition, through his lectures, he establishes Nuclear Astrophysics research in China. He was invited by Peking University, by Tsinghua University (both in Beijing and in Taiwan) and by Nuclear Physics institutes in Beijing, Shanghai, Lanzhou to give lectures on Nuclear Astrophysics many times. He has participated in the international academic conferences over 40 times and he visited more than 20 countries. In 1994, he visited eight institutes in the USA to give lectures. He is the first Chinese Astrophysicist to visit NASA and to give a lecture on the topic, "Nuclear Synthesis of Interstellar 26Al". In 2005, he visited the USA twice and gave lectures in eight universities again. Inviting six astronomers of USA to give series lectures, he has hosted four consecutive terms summer school on gravitational wave astronomy. After the four-summer school obvious effect, at least 20 young scholars in China in the field of gravitational wave astronomy specialized learning and research. 220 research papers by him have been published.

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