Kuiper Belt

Students name

Institutional affiliations

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More and more research about the origin and existence of the Kuiper Belt provides sufficient information about the galaxy and helps us to understand how the solar system was formed. The existence of the Kuiper belt was initially suggested in 1943 by astronomer Kenneth Edgeworth. Despite Kenneth’s suggestion about the existence of comets past Neptune, astronomer Gerard Kuiper predicted the existence of other icy forming the belt within Neptune’s orbit (Wasserman, 2020). The research showed that the presence of comets and the other icy bodies resulted from leftover bodies during the solar system's formation; therefore, it was named as Kuiper Belt or Edgeworth Kuiper Belt. The research further explained that such bodies were far away to stay within the sun's orbit and thus the reason why they were not flung out of the galaxy. The Kuiper Belt is a disc-shaped area comprising frozen volatiles such as gases or icy bodies and other rock objects orbiting the sun nest to Neptune’s orbit. Compared to the Earth's distance from the sun, the disc-shaped area covers 30-40 times which is approximately 2.5-4.5 billion miles.

The Edgeworth Kuiper Belt contains millions of icy and rock objects, most of the objects covering a diameter of 62 miles. In addition, it constitutes other medium objects known as dwarf planets, whose sizes are not larger enough to be considered asteroids but too small to be considered planets (Pitjeva & Pitjev, 2018). Two significant features characterize the dwarf planets; they do not clear the space around them as well as the other planets and their unique orbit behavior, which is much different from the other planets. Pluto is one of the dwarf planets. The nature of Pluto took a couple of years before researchers understood its unique behavior.

In 1992, Jane Luu and David Jewitt discovered the first large Kuiper Belt Objects (KBO) 1992QB1 in 1992 (Stern, et al., 2018). After that, it followed a series of identification which has been up to date with one of the recent discoveries of Sedna in 2004. The invention of telescopes plays a significant role in recent inventions, having contributed to the 2005 and 2008 inventions. The identification of another KBO named Eris, whose size was slightly smaller compared to Pluto in 2005. The discovery showed that Eris had its own moon, and therefore it played a significant role in Pluto's dwarf classification hence, reclassifying it as not one of the nine planets.

Furthermore, the 2008 invention resulted in the classification of the other two dwarf planets. One of the planes was named Makemake, the name given after Polynesian, the famous Polynesian god of creation. In contrast, the other was named Haumea, the name given after Hawaiian, the known goddess of childbirth and fertility.

The considerable distance of the Kuiper Belt Objects from the Earth reduces the visibility effect, resulting in difficulties in studying them. To facilitate the study of the Kuiper Belt Objects in 2006, NASA was willing to facilitate the first mission research. NASA developed a positive attitude towards the New Horizons spacecraft; thus, ten years later, it made it possible to provide a first up-close indication of the Kuiper belt objects, thus providing a close-range view and therefore it would be possible to study them. The availability of the New Horizons spacecraft has continued to push further explorations, which are still being analyzed. The Kuiper Belt research will progressively provide s more profound understanding of the galaxy and the solar system, the origin and its formation hence allowing us to essential concepts.

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