

In Search of Cele

OBAIDUR RAHMAN

Remember that famous "I Want to Believe" poster of an Alien Spacecraft on Fox Mulder's office in the famed T.V series "The X-Files"? The classic question of "Are we alone in this universe" has fascinated us for generations and all the mystery that shrouds in the possibility of life on other planets has simply fueled our curiosity in extra-terrestrial existence. As an effort to find definitive answers to this question which is old as time itself that whether Earth is unique or there are others like it out there, NASA, on March 6 2009, has launched the Kepler Spacecraft from the Cape Canaveral Air Force Station, Florida; the mission objective is to discover Earth like planets orbiting other stars. This 600 million dollar project is not just a scientific mission but a historic one as well because for the next 3.5 years Kepler will observe over 100,000 stars around Cygnus and Lyra constellations of the Milky Way and identify the true Earth analogs that is Earth-sized planets orbiting stars like that of our good old Sun at distances where surface water and hence life could certainly exist. This mission is of great significance for the human race because according to William Borucki's words, the mission's principle science investigator, "Even if we find no planet like Earth that by itself would be profound. It would indicate that we are probably alone in the galaxy."

The size of the known universe is spectacularly and inconceivably vast.

In fact, there are more planets out there than all the sand grains combined in all the beaches of Earth! That is indeed quite a number and the universe that houses them is "mindbogglingly big" as the movie "The hitchhikers guide to the Galaxy" neatly puts it. It was the ancient belief that Earth was the centre of the universe but it is now scientifically acknowledged that Earth isn't even at the centre of the solar system. In fact the solar system is not even at the centre of our galaxy and our galaxy is no way in any special position in contrast to the rest of the known universe. So, from an astronomical viewpoint, Earth is not enjoying any privileged position in space. So the idea that life would only thrive on Earth and nowhere else doesn't sound very convincing. If there are other beings, whether their civilization is advanced as ours or more so is a matter of superior research which Kepler Mission is aiming to perform.

Armed with the largest camera ever launched into space, a 95 megapixel array of charge-coupled devices (or CCD's, like the ones in ordinary digital cameras) with a 12 degree diameter Field Of View, Kepler is the world's first mission with the ability to find true "habitable zones" in the space as it is specially designed to survey the extended solar neighbourhood to detect and characterise hundreds of terrestrials and larger planets in or near the habbitable zone which will broaden the understanding of planetary formation, the frequency of formation, the structure of individual planetary systems and the generic characteristics of stars with terrestrial planets. The first planets that are expected to be exposed to Kepler's "radar" are portly "hot Jupiters" which are basically gas giants (a large, massive, low-density planet composed primarily of hydrogen, helium, methane, and ammonia in either gaseous or liquid state), that circle close and fast around their stars followed by Neptune size planets and then rocky ones like that of Earth. As the mission progresses Kepler will drift farther and farther behind Earth in its orbit around the sun in search for true Earth analogs, planets with surface water and possibly life!

The chance of the Kepler Mission to detect Earth-like planets is much higher than the Hubble Space Telescope because in contrast to the latter one, Kepler has the ability to observe over 100,000 stars simuntaneously while measuring variations in their brightness every thirty minutes. Besides, there is a strong astronomical probability that if 100% of stars studied by Kepler out there had the exact same diameter as the Sun and each had one Earth-like terrestrial planet in an orbit identical to that of the Earth, then Kepler would find about 465 of them. Scientists also expect that since Kepler, which is an Earth-trailing solar orbit, is pointing in the direction of the Solar System's motion around the centre of the gal-