that is at the centre of our planetary system. Moreover, the Earth did not reside in any special place in the Universe and as such, all physical laws that apply on Earth should apply in the same way in other parts of the Universe. This is known as the **Copernican Principle**.

Analysis of observations of the large-scale structure of the Universe and generalizing the Copernican Principle allows us to state that, on large scales, the Universe is statistically both **homogeneous** and **isotropic**. Homogeneity states that observations made at any point in the Universe will be statistically representative of those made at any other point and hence there is no preferred place in the Universe. Isotropy states that the Universe looks statistically the same in all directions. These two aspects of our Universe, when taken together, define what is termed the **Cosmological Principle**, which is a foundational pillar in the current standard model of Cosmology.

2.1 General Relativity

2015 was a milestone year for Albert Einstein's **General Theory of Relativity**, being the 100^{th} anniversary of its first presentation to the world by Einstein. After 100 years, it has survived the test of time and scientific rigor to remain the principle theory that humankind possesses regarding the behavior of gravity on large (cosmological) scales.

Let us start with a reminder of the basic mathematics of Special Relativ-