

Artist Tim Otto Roth with Nobel Laureate Adam Riess

Speaking on the expansion of the universe at the

World Premiere of

The Heaven's Carousel

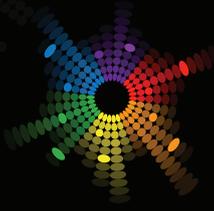
Expressing the expansion of the universe with sound

At the Accademia dei Lincei Palm Garden

17 March 2014

19:00

There is an obvious parallel with the Universe around us. The lights in the dark night sky have a strong acoustic component — due to the long distances in space, we see the echoes of worlds which passed away a long time ago...



The Heaven's Carousel

The human ear is the adequate sensory instrument to perceive acceleration as an intuitive physical experience for everybody. The ear is a sophisticated spectroscopic instrument registering subtle differences in the frequency spectrum of sound, whereas the retina has only three colour receptors for the whole visual colour spectrum. This is why Tim Otto Roth decided to use sound as main medium of expression. The German artist and composer Roth has designed a carousel installation for the Academy's Palm Garden, with 36 LED illuminated spherical loudspeaker sculptures mounted on 12 strings on three levels. These strings will hang from a carousel suspended from a crane ~ 10 metres high. The novel concept of sound spatialization comes in by the fact that the carousel rotates and accelerates creating a kind of acoustic cyclotron. By moving under the installation the oscillating microtonal sound tapestry recomposes differently depending on the visitors position.

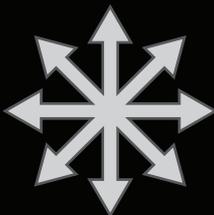
The kinetic sound artwork with its powerfull illumination at night will premiere on 17 March 2014 at 19:00 with the "Préludes for the Heaven's Carousel" — a concertante performance based on different tonal scales inspired, among other phenomena, by spectroscopy.

The Heaven's Carousel is informed and inspired by these phenomena



Doppler effect

The Doppler effect is the observed change in the wavelength of light, or frequency of sound, from an object that is moving toward or away from an observer. For light, an object moving toward an observer at a good fraction of the speed of light will appear relatively bluer. The wavelengths of its light are compressed or shifted toward the bluer region of the electromagnetic spectrum. For objects receding from the observer, the wavelengths of light will be stretched toward the red end of the spectrum. For sound, the pitch of a whistle from an object moving a good fraction of the speed of sound will be higher or lower depending on whether the source is approaching or moving away from the observer.



Expansion of the universe

The universe is expanding after beginning in a hot, dense, and compact state. In this expanding universe, the volume of space between all matter, including galaxies, is increasing with time. Evidence for this expansion comes from observations that the light from increasingly distant galaxies appears increasingly red. The galaxies' light is stretched to longer (redder) wavelengths by the expansion of space. Observations of distant exploding stars called supernovae suggest that the universe's expansion rate is now accelerating under the influence of dark energy, a mysterious repulsive force embedded in the fabric