

- [Browse by](#)
- [Year](#)
- [Subject](#)
- [Division](#)
- [Author](#)
- [Type](#)
- [Latest Additions](#)
- [Usage Statistics](#)

Free resources, inspiring ideas,  
Community & connections..



## Interactions in outer space: how the universe reveals itself

Narayanan, Anand (2016) *Interactions in outer space: how the universe reveals itself*. I Wonder (2). pp. 4-12.



Text

[Download \(325kB\)](#) | [Preview](#)

### Abstract

Outer space is a lonely place. Stars are separated from each other, for the most part, by sheer emptiness. To appreciate how far apart things are in the universe, consider this example. Imagine the Sun as the centre of an expanding sphere. This imaginary sphere will have to grow to a radius of 38,000,000,000,000 kilometers before it can make contact with its nearest star. And that can take no less than about 4 years, even if the sphere were to expand at the speed of light!

**Item Type:** Articles in APF Magazines

**Uncontrolled Keywords:** Universe, cosmic interactions, outer space

**Subjects:** [Natural Sciences > Astronomy & allied sciences](#)

**Divisions:** [Azim Premji University > University publications > i Wonder](#)

**Depositing User:** Mr. Sachin Tirlapur

**Date Deposited:** 19 Sep 2018 12:56

**Last Modified:** 19 Sep 2018 12:56

**URI:** <http://publications.azimpremjifoundation.org/id/eprint/1402>

**Publisher URL:** <https://azimpremjiuniversity.edu.in/SitePages/reso...>

### Actions (login required)

View Item

Altmetric

See more ideas about Outer space, Universe, Astronomy. Spacial awareness: Ultimate guide to exploring space. For decades we've been trying to boldly go where no man has gone before. How successful have we been? All is revealed in this infographic. Cosmos Beautiful World Beautiful Places Beautiful Moon My Sun And Stars Stars At Night All Nature To Infinity And Beyond Nocturne. An image on imgfave. Outer space is the expanse that exists beyond Earth and between celestial bodies. Outer space is not completely empty—it is a hard vacuum containing a low density of particles, predominantly a plasma of hydrogen and helium, as well as electromagnetic radiation, magnetic fields, neutrinos, dust, and cosmic rays. The baseline temperature of outer space, as set by the background radiation from the Big Bang, is 2.7 kelvins ( $-270.45\text{ }^{\circ}\text{C}$ ;  $-454.81\text{ }^{\circ}\text{F}$ ). The plasma between galaxies accounts for about half of