

SCIENCE CENTRE NEWS LETTER

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SCIENCE CENTRE

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WHAT'S NEW IN SCIENCE

First interstellar immigrant discovered in the solar system

A new study has discovered the first known permanent immigrant to our Solar System. The asteroid, currently nestling in Jupiter's orbit, is the first known asteroid to have been captured from another star system. The work is published in Monthly Notices of the Royal Astronomical Society. The object known as 'Oumuamua' was the last interstellar interloper to hit the headlines in 2017. However it was just a tourist passing through, whereas this former exo-asteroid - given the catchy name 2015 BZ509 is a long-term resident. All of the planets in our Solar System, and the vast majority of other objects as well, travel around the Sun in the same direction. However 2015 BZ509 is different, it moves in the opposite direction in what is known as a 'retrograde' orbit.

"How the asteroid came to move in this way while sharing Jupiter's orbit has until now been a mystery," explains Dr Fathi Namouni, lead author of the study. "If 2015 BZ509 were a native of our system, it should have had the same original direction as all of the other planets and asteroids,

inherited from the cloud of gas and dust that formed them. "However the team ran simulations to trace the location of 2015 BZ509 right back to the birth of our Solar System, 4.5 billion years ago when the era of planet formation ended. These show that



2015 BZ509 has always moved in this way, and so could not have been there originally and must have been captured from another system. "Asteroid immigration from other star systems occurs because the Sun initially formed in a tightly-packed star cluster, where every star had its own system of planets and asteroids," comments Dr Helena Morais, the other member of the team. "The close proximity of the stars, aided by the gravitational forces of the planets, help these systems attract, remove and capture asteroids from one another. "The

discovery of the first permanent asteroid immigrant in the Solar System has important implications for the open problems of planet formation, solar system evolution, and possibly the origin of life itself.

Courtesy : Shri Ram Ganesh Gadakari School No. 243

SCIENTIST OF THE MONTH

Vasant Shankar Huzurbazar

Vasant Shankar Huzurbazar was born on September 15, 1919 at Kolhapur in Maharashtra. He did his Masters in Science from Banaras Hindu University and Ph.D. from Cambridge University in 1949. He taught Mathematics in various colleges in Maharashtra. He was the Fullbright Visiting Professor from U.S.A. in 1962-64. He was also a member of the Indo-Soviet Joint Committee for Scientific Collaboration in 1970. Professor Huzurbazar was an eminent mathematician who did distinguished research in Probability Theory and mathematical statistics. His lectures on mathematics

delivered in various institutions and conferences are memorable. He has many books and research papers to his credit in pure mathematics and statistics. Professor Huzurbazar received the prestigious Anams Prize by the Cambridge University for outstanding research work in Probability Theory in 1959 and 1960. He was awarded the Padma Bhushan in 1974. He was conferred the U.S.G. National Lectureship during 1975-76.



Courtesy : Shri Ram Ganesh Gadakari School No. 243



Timings

Tuesday to Friday
9.30 am to 4.30 pm

Saturday - Sunday
& Public Holidays
11.00 am to 6.30 pm

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SCIENCE FACTS SEPTEMBER 2018

5th Sep 1962	India's first Vice President Dr. Sarvapalli Radhakrishnan was born on this day. (" Teacher's Day ")
6th Sep 1766	John Dalton (Inventor of Law of partial pressure & Thermal Expansion) was born on this day.
8th Sep	"International Literacy Day". (UNESCO)
10th Sep 1869	Reverend Jon Scobie invented First Autorickshaw in Japan
10th Sep 1892	Arthur Holly Compton (Inventor of Compton effect) was born on this day.
12th Sep 1992	Mae Jemison, first black woman went into the Space.
14th Sep 1959	Russian first Spacecraft "Luna-2" reached at the surface the moon
15th Sep 1830	World's first inter city passenger railway started between Liverpool and Manchester.
15th Sep 1916	First Tank ever used in Combat by British Army, during battle of the "Somme".
16th Sep	"International Day for the preservation of the Ozone Layer". (U.N.)
21st Sep	"International Day of Peace"(U.N.).
22nd Sep 1791	Michael Faraday (Discoverer of electromagnetic Induction) was born on this day.
23rd Sep	Winter equinox: On this day, Day and night becomes equal on the earth.
28th Sep	"World Rabies Day". (WHO)
29th Sep 1901	Enrico Alberto Fermi (Noble Prize winner in physics for his work on "Induced Radioactivity) was born on this day.
29th Sep	"World Heart Day". (WHO)
U. N. : United Nations	
WHO : World Health Organization	

KNOW THE EXHIBIT AT FUN SCIENCE GALLERY

Cons runs uphill

Roll the double-ended cone to the lowest point of the track and release it. It runs up the track seemingly defying gravity why?

From the diagram you will find that the centre of gravity, on the axis of the cone, actually rolls down while the cone seems to move up the track.



SCIENTIFIC QUESTION

What is Air?

Air is a mixture of gases - nitrogen, oxygen, carbon oxide, water vapor and noble gases. The following observations confirm air to be a mixture. The composition of air is not quite constant. Variations in composition have been found when samples of air are taken from different parts of the earth. This implies that if air were a compound, its composition would be definite or constant. If air is dissolved in water and boiled out again, it will be observed that the percentage of oxygen in the air is increased from 21% to about 30%. The increase in percentage of oxygen only shows that water usually contain dissolved oxygen, even more than nitrogen (oxygen is about twice more soluble in water than nitrogen).

The dissolution and release of air from water is a

physical process which implies that air is a mixture. When liquid air is heated, nitrogen evaporates earlier, leaving almost pure oxygen. This implies that



components of air are easily separable by physical methods. A mixture of carbon oxide, nitrogen, oxygen, water vapor and noble gases in appropriate

ratio does not produce any observable change identifiable with chemical reactions (such as evolution of heat, explosion and volume change), but the mixture is similar to ordinary air in everyway.

The composition of air is not represented by any simple chemical formula. Composition of Air The constituents of air and their percentage composition are given below: Nitrogen - 78.1% (4/5 of volume of air), Oxygen - 20.9% (1/5 of volume of air), Carbon dioxide - 0.03%, Water vapor - variable, Noble gases - about 1%. The above statistics shows that nitrogen and oxygen are the two main gases of the air, occupying about 4/5 and 1/5 volume respectively.

SCIENCE PROJECT

Surat Municipal Corporation had organized 'Science Fair' at ground floor, Art Gallery, Science Centre, Surat on 03 and 04 August 2018. Which was Inaugurated by Hon. Mayorshri. The Theme for the Science Fair was 'Swachha Surat, Green Surat' 31 schools of Surat City had displayed 35 projects in this Science Fair. They prepared their projects on Pollution Control, Epidemic Control, Save Water, Water Accumulation, Production of Energy from Waste.



Flag Exhibition

Flag Exhibition was organized on the first floor of Sardar Vallabhai Patel Museum from 09 to 19 August, 2018. In this exhibition inception and history of Indian flag, its gradual development, photography of various National symbols along with details and replica of flags of various countries were exhibited.



SCIENCE CENTRE

Science Centre forms the main part of the entire complex; it displays thematic galleries in the field of Science and Technology. The ground floor of Science Centre showcases 3D Theatre and Souvenir Shop. The first floor of Science Centre showcases Planetarium, Fun Science Gallery and Power of Play Gallery and second floor of Science Centre showcases Diamond Gallery, whereas Entering into Space, Textile Gallery, Cosmos Gallery and Polar Science Gallery are under development.

3d Show	Tuesday to Friday (Time)	Saturday, Sunday & Holidays (Time)
English	09:15, 11:20, 12:00, 02:40, 04:00	11:20, 12:00, 02:40, 04:00
Hindi	10:00, 10:40, 12:40, 01:20, 02:00, 03:20	12:40, 01:20, 02:00, 03:20, 04:40, 05:20, 06:00
Science Centre + Planetarium + Museum + Diamond Gallery		
Above 18 Years	Rs. 100	
3 Years to 18 Years	Rs. 65	
Science Centre + Museum + Diamond Gallery		Planetarium
Above 18 Years	Rs. 60	Tuesday to Friday
3 Years to 18 Years	Rs. 40	Saturday, Sunday & Public Holidays
Science Centre + Planetarium + Museum + Diamond Gallery + 3D Show		09:30 to 10:20 English
Above 18 Years	Rs. 120	10:30 to 11:20 Gujarati
3 Years to 18 Years	Rs. 80	11:30 to 12:20 Gujarati
Planetarium		12:30 to 01:20 English
Above 18 Years	Rs. 50	01:30 to 02:20 Hindi
3 Years to 18 Years	Rs. 40	02:30 to 03:20 Hindi
3D Show		03:30 to 04:20 Gujarati
Above 18 Years	Rs. 60	04:30 to 05:20 English
3 Years to 18 Years	Rs. 40	05:30 to 06:20 Gujarati