

A.S.D GOVT. DEGREE COLLEGE FOR WOMEN (A),
(Re- Accredited by NAAC with B Grade)
Jagannaickpur, Kakinada-533002, East Godavari, APS

DEPARTMENT OF ZOOLOGY & AQUACULTURE
TECHNOLOGY

2020-2021



Invited Lecture


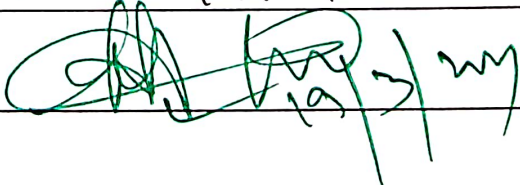
by

Dr. Y. Siva Prasad (Rtd.)

ASD Govt. Degree College for Women (A)

Jagannaickpur, Kakinada

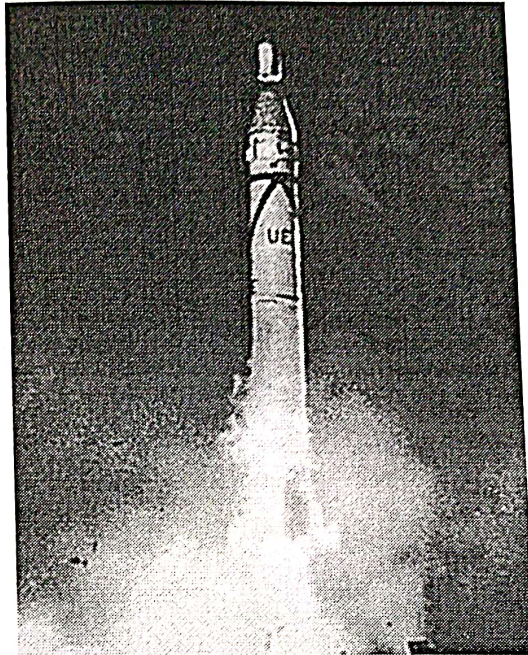
Activity register 2021

Date	19-03-2021.
Conducted through (DRC/JKC/NCC/NSS/Department)	Zoology Department
Nature of Activity (Seminar/Workshop/Ext. Lecturer etc.)	INVITED LECTURE
Title of the Activity	INVITED LECTURE
Name of the Department/Committee	Zoology
Details of Resource Persons (Name. Designation etc.)	Dr. Y. Siva Prasad ISRO Former Senior Scientist , Thiruvananthapuram
No. of Students Participated	120
Brief Report on the Activity	Explained about general awareness on space research and from the use of space technology and universe to the observable universe.
Name of the Lecturers who Planned & Conducted the Activity	U. Satyanarayana B. Sonia N. Veera chanti
Signature of the in Charge	 19/3/21
Signature of the Principal	 19/3/21
Remarks	

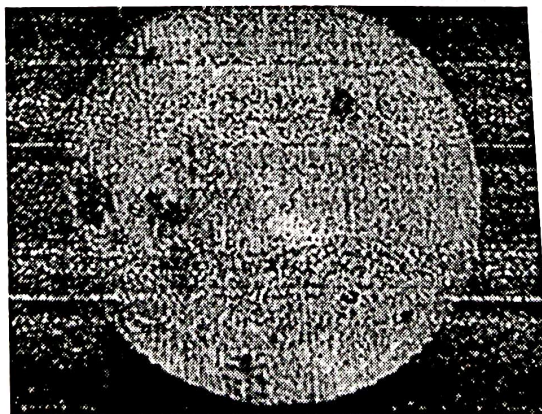
Space research

Space research is scientific study carried out in outer space, and by studying outer space. From the use of space technology to the observable universe, space research is a wide research field. Earth science, materials science, biology, medicine, and physics all apply to the space research environment. The term includes scientific payloads at any altitude from deep space to low Earth orbit, extended to include sounding rocket research in the upper atmosphere, and high-altitude balloons.

History



The first US satellite was the Explorer 1, seen here launching, 1 February 1958



First image of the far side of the Moon, sent back to Earth by the Luna 3 mission

Rockets

Chinese rockets were used in ceremony and as weaponry since the 13th century, but no rocket would overcome Earth's gravity until the latter half of the 20th century. Space-capable rocketry appeared simultaneously in the work of three scientists, in three separate countries. In Russia, Konstantin Tsiolkovsky, in the United States, Robert H. Goddard, and in Germany, Hermann Oberth.

The United States and the Soviet Union created their own missile programs. The space research field evolved as scientific investigation based on advancing rocket technology.

In 1948–1949 detectors on V-2 rocket flights detected x-rays from the Sun.^[1] Sounding rockets helped show us the structure of the upper atmosphere. As higher altitudes were reached, space physics emerged as a field of research with studies of Earth's aurorae, ionosphere and magnetosphere.

Artificial satellites

The first artificial satellite, Russian Sputnik 1, launched on October 4, 1957, four months before the United States first, Explorer 1. The major discovery of satellite research was in 1958, when Explorer 1 detected the Van Allen radiation belts. Planetology reached a new stage with the Russian Luna programme, between 1959 and 1976, a series of lunar probes which gave us evidence of the Moon's chemical composition, gravity, temperature, soil samples, the first photographs of the far side of the Moon by Luna 3, and the first remotely controlled robots (Lunokhod) to land on another planetary body.



Yuri Gagarin was the first human being to travel in space

International co-operation

The early space researchers obtained an important international forum with the establishment of the Committee on Space Research (COSPAR) in 1958, which achieved an exchange of scientific information between east and west during the cold war, despite the military origin of the rocket technology underlying the research field.^[2]

Astronauts

On April 12, 1961, Russian Lieutenant Yuri Gagarin was the first human to orbit Earth, in Vostok 1. In 1961, US astronaut Alan Shepard was the first American in space. And on July 20, 1969, astronaut Neil Armstrong was the first human on the Moon.

On April 19, 1971, the Soviet Union launched the Salyut 1, the first space station of substantial duration, a successful 23 day mission, sadly ruined by transport disasters. On May 14, 1973, Skylab, the first American space station launched, on a modified Saturn V rocket. Skylab was occupied for 24 weeks.^[3]

Extent

is the name of the farthest and most primitive object visited by human spacecraft. Originally designated "1110113Y" when detected by Hubble in 2014, the planetesimal was reached by the New Horizons probe on 1 January 2019 after a week long manoeuvring phase. New Horizons detected Ultima Thule from 107 million miles and performed a total 9 days of manoeuvres to pass within 3,500 miles of the 19 mile long contact binary. Ultima Thule has

an orbital period around 298 years, is 4.1 billion miles from Earth, and over 1 billion miles beyond Pluto.

Interstellar

The Voyager 1 probe launched on 5 September 1977, and flew beyond the edge of our solar system in August 2012 to the interstellar medium. The farthest human object from the Earth, predictions include collision, an Oort cloud, and destiny, "perhaps eternally—to wander the Milky Way."

Voyager 2 launched on 20 August 1977 travelling slower than Voyager 1 and reached interstellar medium by the end of 2018. Voyager 2 is the only Earth probe to have visited the ice giants of Neptune or Uranus

Neither Voyager is aimed at a particular visible object, but both continue to send research data to NASA Deep Space Network as of 2019.

Two Pioneer probes and the New Horizons probe are expected to enter interstellar medium in the near future, but these three are expected to have depleted available power before then, so the point of exit cannot be confirmed precisely. Predicting probes speed is imprecise as they pass through the variable heliosphere. Pioneer 10 is roughly at the outer edge of the heliosphere in 2019. New Horizons should reach it by 2040, and Pioneer 11 by 2060.

Two Voyager probes have reached interstellar medium, and three other probes are expected to join that list.

Research fields

Space research includes the following fields of science:^{[4][5]}

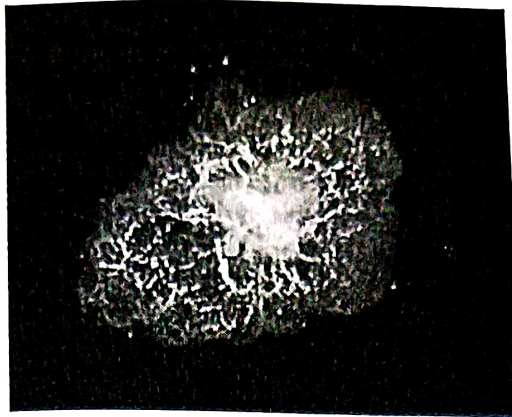
- **Earth observations**, using remote sensing techniques to interpret optical and radar data from Earth observation satellites
- **Geodesy**, using gravitational perturbations of satellite orbits
- **Atmospheric sciences**, aeronomy using satellites, sounding rockets and high-altitude balloons
- **Space physics**, the in situ study of space plasmas, e.g. aurorae, the ionosphere, the magnetosphere and space weather
- **Planetology**, using space probes to study objects in the planetary system
- **Astronomy**, using space telescopes and detectors that are not limited by looking through the atmosphere
- **Materials sciences**, taking advantage of the micro-g environment on orbital platforms
- **Life sciences**, including human physiology, using the space radiation environment and weightlessness, also growing Plants in space
- **Physics**, using space as a laboratory for studies in fundamental physics.

Space research from artificial satellites

Upper Atmosphere Research Satellite

Upper Atmosphere Research Satellite was a NASA-led mission launched on September 12, 1991. The 5,900 kg (13,000 lb) satellite was deployed from the Space Shuttle Discovery during the STS-48 mission on 15 September 1991. It was the first multi-instrumented satellite to study various aspects of the Earth's atmosphere and have a better understanding of photochemistry. After 14 years of service, the UARS finished its scientific career in 2005.^[6]

Great Observatories program



Great Observatories program telescopes are combined for enhanced detail in this image of the Crab Nebula

Great Observatories program is the flagship NASA telescope program. The Great Observatories program pushes forward our understanding of the universe with detailed observation of the sky, based in gamma rays, ultraviolet, x-ray, infrared, and visible, light spectrums. The four main telescopes for the Great Observatories program are, Hubble Space Telescope (visible, ultraviolet), launched 1990, Compton Gamma Ray Observatory (gamma), launched 1991 and retired 2000, Chandra X-Ray Observatory (x-ray), launched 1999, and Spitzer Space Telescope (infrared), launched 2003.

Origins of the Hubble, named after American astronomer Edwin Hubble, go back as far as 1946. In the present day, the Hubble is used to identify exo-planets and give detailed accounts of events in our own solar system. Hubbles visible-light observations are combined with the other great observatories to give us some of the most detailed images of the visible universe.

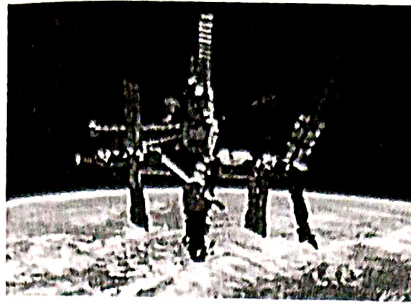
International Gamma-Ray Astrophysics Laboratory

INTEGRAL is one of the most powerful gamma-ray observatories, launched by the European Space Agency in 2002, and continuing to operate (as of March 2019). INTEGRAL provides insight into the most energetic cosmological formations in space including, black holes, neutron stars, and supernovas.^[2] INTEGRAL plays an important role researching gamma-rays, one of the most exotic and energetic phenomena in space.

Gravity and Extreme Magnetism Small Explorer

The NASA-led GEMS mission was scheduled to launch for November 2014.^[8] The spacecraft would use an X-Ray telescope to measure the polarization of x-rays coming from black holes and neutron stars. It would research into remnants of supernovae, stars that have exploded. Few experiments have been conducted in X-Ray polarization since the 1970s, and scientists anticipated GEMS to break new ground. Understanding x-ray polarisation will improve scientists knowledge of black holes, in particular whether matter around a black hole is confined, to a flat-disk, a puffed disk, or a squirting jet. The GEMS project was cancelled in June 2012, projected to fail time and finance limits. The purpose of the GEMS mission continues to be relevant (as of 2019).

Space research on space stations



Soviet (later Russian) station Mir was the first long term inhabited station

Salyut 1

Salyut 1 was the first space station ever built. It was launched on April 19, 1971 by the Soviet Union. The first crew failed entry into the space station. The second crew was able to spend twenty-three days in the space station, but this achievement was quickly overshadowed since the crew died on reentry to Earth. Salyut 1 was intentionally deorbited six months into orbit since it prematurely ran out of fuel.^[9]

Skylab

Skylab was the first American space station. It was 4 times larger than Salyut 1. Skylab was launched on May 19, 1973. It rotated through three crews of three during its operational time. Skylab's experiments confirmed coronal holes and were able to photograph eight solar flares.^[10]

Mir

Soviet (later Russian) station Mir, from 1986 to 2001, was the first long term inhabited space station. Occupied in low Earth orbit for twelve and a half years, Mir served a permanent microgravity laboratory. Crews experimented with biology, human biology, physics, astronomy, meteorology and spacecraft systems. Goals included developing technologies for permanent occupation of space.

International Space Station

Main article: Scientific research on the International Space Station

The International Space Station of today is a modern research facility

The International Space Station received its first crew as part of STS-88, in December 1998, an internationally co-operative mission of almost 20 participants. The station has been continuously occupied for 20 years and 165 days, exceeding the previous record, almost ten years by Russian station Mir.^[11] The ISS provides research in microgravity, and exposure to the local space environment. Crew members conduct tests relevant to biology, physics, astronomy, and others. Even studying the experience and health of the crew advances space research.

Invited talk on "General Awareness on
Space Research".

BY.

Dr. Y. Siva Prasad

ISRO Former Senior Scientist

Thiruvananthapuram



S.No	Name of the student	Class	Signature
1.	Ganika Dhanalakshmi	III BSC (CBZ)	G. Ganika
2.	G. Arka Krishna Veni	III BSC (CBZ)	G. Krishna Veni
3.	Chitkela. Uma Lakshmi	III BSC (CBZ)	Ch. Umalakshmi
4.	Kadali Umadevi	III BSC (CBZ)	K. Umadevi
5.	Kadali Sreedevi	III rd BSC (CBZ)	K. Sreedevi
6.	Yalamanchili Diya Sni	III rd BSC (CBZ)	M. Diya Sni
7.	Kasi Lakshmi Durga	III rd BSC (CBZ)	K. Lakshmi Durga
8.	M. Anusha	"	M. Anusha
9.	V. Anusha	"	V. Anusha
10.	G. Bhanu Deepthi	"	G. Bhanu Deepthi
11.	M. Sudha Mounica	"	M. Sudha Mounica
12.	A. Lakshmi Durga	"	A. Lakshmi Durga
13.	B. Chandu	"	B. Chandu
14.	G. Vasanthi	"	G. Vasanthi
15.	Chitkela. Sruja Bhavani	III BSC (CBZ)	Ch. Sruja Bhavani
16.	K. Janila	III B. V (CBZ)	K. Janila
17.	A. Satyaveni	III B. SC (CBZ)	A. Satyaveni
18.	P. Srinitha	III BSC (CBZ)	P. Srinitha
19.	P. Satya Janani	III BSC (CBZ)	P. Satya Janani
20.	T. Varalakshmi	III BSC (CBZ)	T. Varalakshmi
21.	B. Manmatha Sivani Prayagna	III BSC (CBZ)	B. Manmatha
22.	M. Parinitha	III BSC (CBZ)	M. Parinitha
23.	E. Padmini Devi	III BSC (CBZ)	E. Padmini Devi
24.	P. Suresh Anjali	III BSC (CBZ)	P. Suresh Anjali
25.	V. Bhavani	III BSC (CBZ)	V. Bhavani
26.	V. Meghana	III BSC (CBZ)	V. Meghana
27.	P. Dayana	III BSC (CBZ)	P. Dayana
28.	G. Jahnavi	III BSC (CBZ)	G. Jahnavi
29.	U. Pujitha	III BSC (CBZ)	U. Pujitha
30.	A. Sitha Mahalakshmi	III BSC (CBZ)	A. Sitha Mahalakshmi
31.	A. Pavani naga Durga	III BSC (CBZ)	A. Pavani naga Durga
32.	P. Vani Sri	III BSC (CBZ)	P. Vani Sri
33.	A. Baby Chandana	III BSC (CBZ)	A. Baby Chandana
34.	R. Sheela Latha	III BSC (CBZ)	R. Sheela Latha
35.	P. Konda Devi	III BSC (CBZ)	P. Konda Devi
36.	R. Ratna Lakshmi Kemari	III BSC (CBZ)	R. Ratna Lakshmi Kemari
37.	K. Devi	III BSC (CBZ)	K. Devi
38.	Ch. Devi	III BSC (CBZ)	Ch. Devi
39.			
40.			
41.			
42.			
43.			
44.			
45.			
46.			
47.			
48.			

S.No	Name of the student	Class	Signature
1.	Ravi. Bhagya Sri		
2.	Ganita dhanalakshmi	III BSC (CBZ)	R. Bhagyasri
3.	Ganulu. Krishna veni	III BSC (CBZ)	G. dhanalakshmi
4.	Kadali umadevi	III BSC (CBZ)	G. Krishna veni
5.	G. Bhanu Deepthi	III BSC (CBZ)	K. Umadevi
6.	M. Sudha moorika	III BSC (CZAgT)	G. Bhanu Deepthi
7.	G. Gueetha	III BSC (CZAgT)	M. Sudha moorika
8.	B. Aparna	"	G. Gueetha
9.	K.S. Durga	"	B. Aparna
10.	B. Chandu	"	K.S. Durga
11.	G. Vasantha	"	B. Chandu
12.	E. Karuna	"	G. Vasantha
13.	K. Lanemi Durga	"	E. Karuna
14.	K. Vatsali	III Bsc (CZAgT)	K. Lanemi Durga
15.	K. Mahalakshmi	III Bsc (CBZ)	K. Vatsali
16.	S. Durga	"	K. Mahalakshmi
17.	A. Satyaveni	"	S. Durga
18.	K. Janice	"	A. Satyaveni
19.	Ch. Durga Bhavani	"	K. Janice
20.	V. Anusha	"	Ch. Durga Bhavani
21.	V. Anusha	III BSC (CZAgT)	V. Anusha
22.	K. Sreedevi	"	V. Anusha
23.	E. Lavanya	III Bsc (CZAgT)	K. Sreedevi
24.	Y. Divya Sree	III Bsc (CZAgT)	E. Sreedevi Lavanya
25.	B. Mohnika	"	Y. Divya Sree
26.	P. Anjili	III Bsc (CZAgT)	B. Mohnika
27.	V. Bhavani	III Bsc (CBZ)	P. Anjili
28.	Ch. Varda Lakshmi	III Bsc (CBZ)	V. Bhavani
29.	K.S.D. Maha Lakshmi	III Bsc (CBZ)	Ch. Varda Lakshmi
30.	P. Satya Janani	III Bsc (CBZ)	K.S.D. Maha Lakshmi
31.	P. Sirishi	III Bsc (CBZ)	P. Satya Janani
32.	B. Namatha Sivani prasanna	III Bsc (CBZ)	P. Sirishi
33.	T. Voralakshmi	III Bsc (CBZ)	B. Namatha
34.	M. Parimila	III Bsc (CBZ)	T. Voralakshmi
35.	C. Padmini devi	III Bsc (CBZ)	M. Parimila
36.	V. Pujitha	III Bsc (CBZ)	C. Padmini devi
37.	A. Sita Mahalakshmi	III Bsc (CBZ)	V. Pujitha
38.	A. pavani naga Durga	III Bsc (CBZ)	A. Sita Mahalakshmi
39.	D. Vani Sri	III Bsc (CBZ)	A. pavani naga Durga
40.	A. Baby Chandana	III Bsc (CBZ)	D. Vani Sri
41.	K. Sneha Latha	III Bsc (CBZ)	A. Baby Chandana
42.	P. Konda Devi	III Bsc (CBZ)	K. Sneha Latha
43.	R. Sravani	III Bsc (CBZ)	P. Konda Devi
44.	K. Patna Lakshmi Kumari	III Bsc (CBZ)	R. Sravani
45.	K. Devi	III Bsc (CBZ)	K. Patna Lakshmi Kumari
46.	Ch. Devi	III Bsc (CBZ)	K. Devi
47.			Ch. Devi
48.			