



EMEA COLLEGE OF ARTS AND SCIENCE, KONDOTTI

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Research Methodology series

**Talk 1: Detection methods in exoplanet
research.**

**Double Main department of Mathematics
and Physics**

Date: 5/12/2022

DOUBLE MAIN DEPARTMENT OF MATHEMATICS & PHYSICS
 EMEA COLLEGE OF ARTS AND SCIENCE, KONDOTTY
 Re-accredited with 'A' Grade by NAAC

RESEARCH METHODOLOGY SEMINAR SERIES

TALK 1: DETECTION METHODS IN EXOPLANET RESEARCH.

Inauguration

Lt Abdul Rasheed P
 (Principal, EMEA College, Kondotty)

Lecture 1

Prof. (Dr.) Anand Narayanan
 Prof, Indian Institute of Space Science & Technology

DEC. 2022 **05** SEMINAR HALL
 MONDAY - 1.30 - 3.15 PM

Cordinator: Dr. Ramsiya M
 Mob: 99952 661 781, drramsiyam@gmail.com

TITLE:
Detection methods in exoplanet research.

Abstract: The study of exoplanetary research can help us understand the formation and evolution of the solar system itself and search for terrestrial planets in the habitable and extrasolar lives in exoplanetary systems. Exoplanets have become an important area of astrophysics in the last two decades. This paper reviews five different methods to detect exoplanets, including direct imaging, astrometry, radial velocity, transit event observation, and microlensing. These approaches could expand our understanding of the types, formation and evolution of exoplanets and how research in this field has been feeding the more popular quest to find life elsewhere in the universe.

Brief Bio

Dr Anand Narayanan is currently a Professor at the **Indian Institute of Space Science & Technology**, an institute under the Department of Space, Government of India. Previously he was a post-doctoral scholar in the Department of Astronomy at the **University of Wisconsin-Madison in the US** and earned his Ph.D. and Masters in Astrophysics from the **Pennsylvania State University in the US**. Prior to that, he completed a B.Tech in Electrical and Electronics Engineering from the College of Engineering, Thiruvananthapuram.



Dr Anand Narayanan
 Prof, Indian Institute of Space Science & Technology (IIST), Thiruvananthapuram

Contact for registration :

Dr. Ramsiya M

99952 661 781 | drramsiyam@gmail.com

The department of Maths and Physics EMEA college started a new session called Research Methodology seminar series, to familiar the students with the recent research problems. This series was inaugurated by the Principal, Lt Abdul Rasheed P. The welcome speech was delivered by the Head of the department Dr. Ramsiya M. The First edition of Research methodology series was held on 5 th December from 1:15 to 3:45 at seminar hall, EMEA. and Prof. Dr Anand Narayan from IIST, Trivandrum was the chief guest.

Dr Anand Narayan, a well-known astrophysicist at the Indian Institute of Space Science and Technology (an autonomous Institute under the Department of Space, Government of India). he was a post-doctoral scholar in the Department of Astronomy at the University of Wisconsin-Madison in the US and earned his Ph.D and masters in astrophysics from the Pennsylvania State University in the US. Prior to that, he completed a B.tech in Electrical and Electronics Engineering from the college of Engineering, Thiruvananthapuram.

Anand Narayanan is a renowned researcher in the field of exoplanet research. He has made significant contributions to the methodology used in this area of study. His talk focuses on the detection and characterization of exoplanets, which are planets outside our solar system.

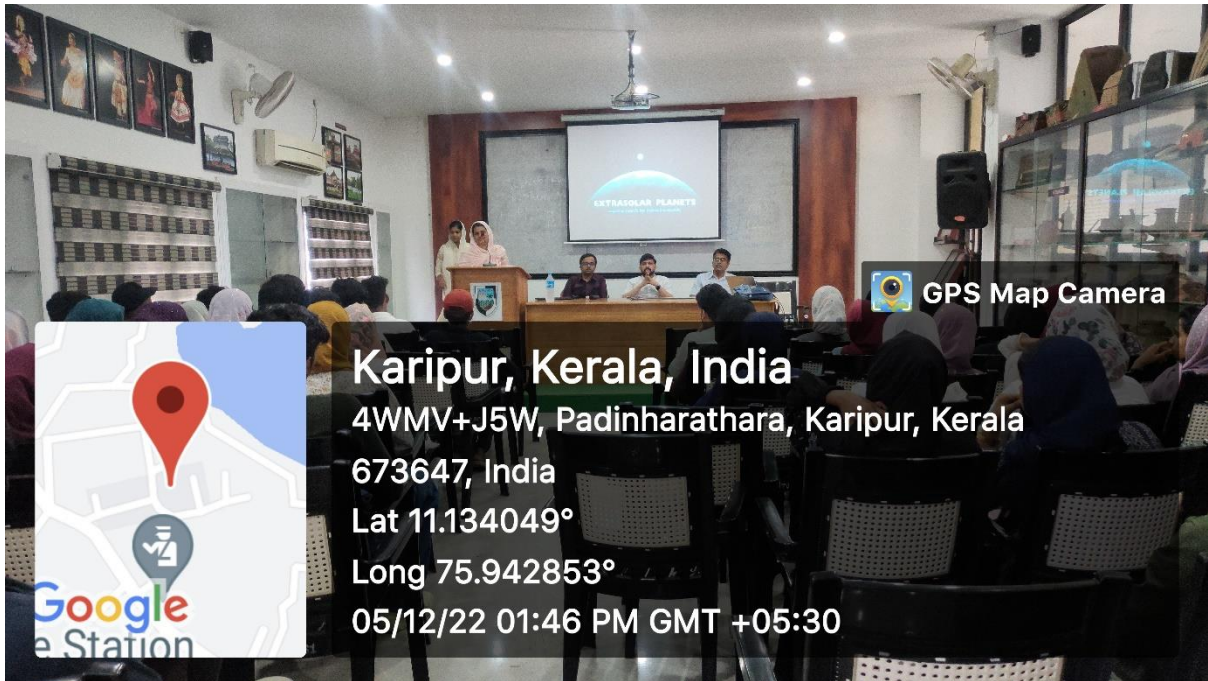
One of the key research methodologies used by Anand Narayanan is the transit method. This method involves observing the slight dimming of a star's brightness when an exoplanet passes in front of it. By carefully analyzing these changes in brightness, scientists can determine the presence and characteristics of exoplanets, such as their size, orbit, and even atmospheric composition.

Another methodology described by Narayanan is the radial velocity method. This technique involves measuring the slight wobble of a star caused by the gravitational pull of an orbiting exoplanet. By analyzing these subtle changes in a star's motion, researchers can infer the presence and properties of exoplanets.

In addition to these primary methods, Narayanan also explains other techniques such as direct imaging, gravitational microlensing, and astrometry to study exoplanets. Each of these methods has its own advantages and limitations, and Narayanan's research involves a comprehensive approach that combines multiple methodologies to gain a more complete understanding of exoplanets.

It's worth noting that Anand Narayanan has also described the development of advanced data analysis techniques and statistical models specifically tailored for exoplanet research. These tools help students/researchers to extract valuable information from the vast amount of data collected during observations.

Overall, Students are familiar with the observational techniques and advanced data analysis methods in exoplanet research. His talk has significantly contributed to students understanding of exoplanets and has paved the way for future discoveries in this exciting field. The program ended with the Vote of thanks by Dr. Abdul Rasheed Paloly.



Welcome speech by Dr. Ramsiya M



Inaugural address by Principal Lt. Abdul Rasheed.



Dr. Anand Narayan handling sessions



Vote of thanks by Dr. Abdul Rasheed Paloly

Research Methodology Seminar Series

Talk 1: Detection methods in Exoplanet research.

Resource Person: Dr. Anand Narayanan
 Professor Indian Institute of Science
 & Technology, Thiruvananthapuram.
 Seminar Hall
 115- 3:00 PM.

S. No	Name of Student	Class	Signature
1	Aashraf Roshan B.K	Double main-1	
2	Mono Mubashir - M	DM - 1	
3	Muhammed Shibil-OK	DM-1	
4	RAYAN SHALIR C.	DM-1	
5	Muhammed Sman A.C	DM-1	
6	Mohammed Midlaj K.K	DM-1	
7	Muhammed midlaj K.K	DM-1	
8	Nasecha Sheerin	DM-1	
9	Aneefpk	DM-1	
10	MUSSAFIRA - M	DM-1	
11	HIFASITH YUSUF	DM-1	
12	Farhath Sheerin	"	
13	MANAL MOHAMMED	"	
14	HUDA SAFNAS	"	
15	SHAMNU JIHAN - P	"	
16	FATHIMA FIDA - V	"	
17	IRFANA - P	"	
18	NADHA JABINI - M	"	
19	SAHLA JASMIN - P	"	
20	Fahma Parveen - V	"	
21	Shameera Shemi - OP	"	
22	Jumana Shirin T.P	"	
23	Ashil shabeed K.	DM-1	

24	MUHAMMED SIYAS K.C	DM-III	<i>[Signature]</i>
25	IBRAHIM BADUSHA K	DM III	<i>[Signature]</i>
26	Munirah A	DM III	<i>[Signature]</i>
27	Fabil Faisal PT	DM III	<i>[Signature]</i>
28	shidam K	DM III	<i>[Signature]</i>
29	Zainu Zaman	DM 2 nd sem	<i>[Signature]</i>
30	Shahin adil K	DM 3 rd sem	<i>[Signature]</i>
31	Muhammed Ramees K.P	DM 3 rd sem	<i>[Signature]</i>
32	Muhammed Rabeeh - C	DM - III	<i>[Signature]</i>
33	Shahul kumseed - P	DM III	<i>[Signature]</i>
34	Muhammed Jasir Danish	DM III rd	<i>[Signature]</i>
35	Shahras - MK	DM III rd	<i>[Signature]</i>
36	Shahana Nusrig - KM	DM 3 rd	<i>[Signature]</i>
37	Mufliba P	DM III 2 nd	<i>[Signature]</i>
38	Sajid Sathana P.C	DM III 2 nd	<i>[Signature]</i>
39	MINHA	DM - 7 st	<i>[Signature]</i>
40	Fathima Vafiya P	DM - 7 st	<i>[Signature]</i>
41	SHIFANA M	DM - 1 st	<i>[Signature]</i>
42	Selva MT	DM - 1 st	<i>[Signature]</i>
43	Fathima Nusuha K	DM - 1 st	<i>[Signature]</i>
44	Fasna K.P	DM - 1 st	<i>[Signature]</i>
45	Ahnan K.C	DM - 1 st year	<i>[Signature]</i>
46	Missriya P	DM 3 rd year	<i>[Signature]</i>
47	Rafaida P.P	DM 3 rd year	<i>[Signature]</i>
48	Murshida K	" "	<i>[Signature]</i>
49	Hateefa Rishana M	DM 3 rd year	<i>[Signature]</i>
50	ANANDHU C	DM 2 nd year	<i>[Signature]</i>
51	Shifana Sherin K	" "	<i>[Signature]</i>
52	Najava M.K	" "	<i>[Signature]</i>
53	Ansaba K.K	" "	<i>[Signature]</i>
54	De Ransuya M	" "	<i>[Signature]</i>
55	Dimila V.K	" "	<i>[Signature]</i>
56	Muhammed Jamal P	" "	<i>[Signature]</i>