

# ALBIN P JAMES

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## EDUCATION

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<b>Master's in Physics</b> , National Institute of Technology, Calicut (NITC)	10/2020 - 05/2022
<b>Bachelor's in Physics</b> , St. Berchmans' College, Kerala	06/2017 - 04/2020
<b>Senior Secondary</b> , Navajeevan Bethany Vidyalay CBSE, Nalanchira, Kerala	05/2017

## ACADEMIC ACHIEVEMENTS

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<b>Joint Entrance Screening Test (JEST) Physics</b>	2020
All India Rank <b>253</b>	
A GRE-type national level entrance examination for postgraduate and Integrated PhD studies in India conducted jointly by several premier institutes such as IISc, IISERs, NISER and other research institutes.	
<b>Joint Admission test for M.Sc (JAM) Physics</b>	2020
All India Rank <b>1116</b>	
A GRE-type national level entrance examination for postgraduate and Integrated PhD studies in India conducted by a group of Indian Institute of Technologies (IITs) and other research institutes.	

## AREAS OF INTEREST

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Computational Astrophysics and Cosmology | Scientific Computing | History & Philosophy of Science

## RESEARCH & PROJECT EXPERIENCE

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<b>Statistical Properties of Dark Matter Halos from Cosmological Simulations</b>	07/2021 - 05/2022
MSc Dissertation	
Supervisor: Dr Charles Jose, Assistant Professor, CUSAT	
In the theory of cosmological structure formation, galaxies form in gravitationally bound dark matter clumps called dark matter halos. In this project, we investigate the statistical properties of dark matter halos using numerical simulations. In particular, we estimate the halo mass function, which is the number density of dark matter halo as a function of mass, for various redshifts and box sizes. Further, a counts-in-cells analysis for halo mass function was conducted for redshifts 0.2 and 3 by dividing the boxes into smaller boxes of 50, 25 and 20 Mpc/h and measuring the variation of mass function across sub boxes	
<b>Development of MATLAB code for the analysis of Magnetometer data</b>	07/2019 - 05/2020
BSc Dissertation	
Supervisor: Dr Lijo Jose, Assistant Professor, SB College	
The data from Sensys FGM3D TD magnetometer was analysed using MATLAB codes and the output processed and plotted using Origin Pro. Magnetometers of Space Physics Laboratory, VSSC Trivandrum placed at Changanassery SB College and Kannur were used to collect the data. The analysis of the magnetometer data during the solar eclipse using the code showed a drastic variation of the ionosphere compared to an average day.	

## PROFESSIONAL CERTIFICATION

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<b>Google IT Support Professional Certification</b>	07/2020
Google and offered through Coursera. The courses taken includes	
<ol style="list-style-type: none"><li>1. Technical Support Fundamentals</li><li>2. Operating Systems and You: Becoming a Power User</li><li>3. IT Security: Defense against the digital dark arts</li><li>4. System Administration and IT Infrastructure Services</li><li>5. The Bits and Bytes of Computer Networking</li></ol>	

## TECHNICAL SKILLS & EXPERTISE

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### Programming Languages:

Familiar with: Python, C++, MATLAB, LaTeX | Basic understanding of: C, HTML, CSS

**Miscellaneous:** Origin Pro, Slurm

**Python Packages & Simulations :** sklearn, abacusnbody, astropy, scipy, numpy, GADGET2, NgenIC, etc...

**Platforms:** Linux, Windows, MS Office

**Visual & Graphics:** After Effects, Premier Pro, Photoshop, Illustrator

## CERTIFICATIONS

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### Machine Learning with Python

IBM and offered through Coursera

Ongoing

### Data-driven Astronomy

The University of Sydney and offered through Coursera

Ongoing

### From the Big Bang to Dark Energy

The University of Tokyo and offered through Coursera

06/2020

### Understanding Research Methods

University of London and SOAS University of London and offered through Coursera

04/2020

### Psychological First Aid

Johns Hopkins University and offered through Coursera

12/2019

### Philosophy and the Sciences: Introduction to the Philosophy of Physical Sciences

The University of Edinburgh and offered through Coursera

08/2019

### Introduction to Psychology

Yale University and offered through Coursera

07/2019

## MEMBERSHIPS

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### Breakthrough Science Society, Trivandrum Chapter

5/2021

A voluntary organisation committed to the cause of science, culture and scientific outlook.

- To promote science among students & general public.
- To provide students access to seminars and talks by notable researchers free of cost.

## CONFERENCES AND WORKSHOPS

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### Sagan Exoplanet Summer Workshop on "Circumstellar Disks and Young Planets"

2021

NASA Exoplanet Science Institute, California Institute of Technology in Pasadena, CA.

### IIA Summer Programme 2021

2021

Indian Institute of Astrophysics

### E-Workshop on LaTeX 2021

2021

GITAM Deemed to be University

### Creative Science Workshop 2012

2012

Kerala State Science and Technology Museum (KSSTM), Trivandrum

## POSITIONS OF RESPONSIBILITIES

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### Deputy Speaker

2021-2022

Student Affairs Council (SAC) - NIT Calicut,

- I was entrusted with coordinating all the activities pertaining to student body including the research community.

### Student Coordinator

2018-2020

Science Centre- St Berchmans College, Changanassery,

- I researched and hosted an Inter departmental science quiz.
- Organised an Astronomy workshop and various sky watching sessions.
- Hosted science exhibitions as part of the science centre.

**Secretary**

2019-2020

Physics Department Association- St Berchmans College, Changanasserry

- I was instrumental in initiating several programmes and activities in the college on behalf of the association.
- Organized an All Kerala Inter Collegiate Quiz and presentation competition.

**HRD Team Excellence Member**

2018-2019

Human Resource Department- St Berchmans College, Changanasserry

Every programmes in the college are carried out by a group of 20 students selected by the Human Resource Department of the college known as 'Team Excellence'.

- I was able to co-ordinate with my team to organize several programmes in the college.
- Organized several National and International seminars in the college.

**ACHIEVEMENTS**

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**MG University Kalolsavam Quiz**

Represented St Berchmans College at MG University Kalolsavam and bagged the runner up position for the consecutive years 2019 and 2020.

**Winner - Major Science Quiz Competitions**

Won prizes for all major quiz competitions conducted across Kerala. Mainly the one focusing on science. Space and physics quiz are my forte.

**Best Outgoing Student**

The best outgoing student of Navajeevan Bethany Vidyalaya during the academic year 2016-2017.

**COURSES**

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Numerical & Computational Physics | Astrophysics | General Relativity | Classical Mechanics | Electromagnetic Theory | Mathematical Physics | Nuclear and particle Physics | Quantum Mechanics | Condensed Matter Physics.