

# 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 - Ongoing
<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>JEST All India Rank 253</b>	2020
<b>JAM All India Rank 1116</b>	2020

## AREAS OF INTEREST

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Astrophysics and Cosmology | Computational Physics | 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 - 04/2022
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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 within an infinitesimal logarithmic mass bin. The study uses the data from the AbacusSummit simulation. Using the Madhava high performance computing cluster, the data was analysed. Hence the halo mass functions for various redshifts of box sizes 500 Mpc/h and 2000 Mpc/h were computed. The statistical properties were further studied for redshifts 0.2 and 3 by dividing both the boxes into smaller boxes of 50, 25 and 20 Mpc/h.

<b>Development of MATLAB code for the analysis of Magnetometer data</b>	07/2019 - 05/2020
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BSc Dissertation

Supervisor: Dr Lijo Jose, Assistant Professor, SB College

The data was analysed using MATLAB Codes. The output was manipulated and plotted using Origin Pro. Sensys FGM3D TD 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
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Google and offered through Coursera

1. Technical Support Fundamentals
2. Operating Systems and You: Becoming a Power User
3. IT Security: Defense against the digital dark arts
4. System Administration and IT Infrastructure Services
5. The Bits and Bytes of Computer Networking

## TECHNICAL SKILLS & EXPERTISE

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Programming Languages:

Advanced: Python, C++ | Intermediate: MATLAB, LaTeX | Basic: C, HTML, CSS

Miscellaneous: Origin Pro, Slurm  
Simulations & Python Packages : GADGET 2, NgenIC, abacusnbody, astropy etc...  
Platforms: Linux, Windows, MS Office  
Visual & Graphics: After Effects, Premier Pro, Photoshop, Illustrator

## CERTIFICATIONS

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<b>Data-driven Astronomy</b> The University of Sydney through Coursera	Ongoing
<b>From the Big Bang to Dark Energy</b> The University of Tokyo through Coursera	06/2020
<b>Understanding Research Methods</b> University of London and SOAS University of London offered through Coursera	04/2020
<b>Psychological First Aid</b> Johns Hopkins University and offered through Coursera	12/2019
<b>Philosophy and the Sciences: Introduction to the Philosophy of Physical Sciences</b> The University of Edinburgh and offered through Coursera	08/2019
<b>Introduction to Psychology</b> Yale University and offered through Coursera	07/2019

## MEMBERSHIPS

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<b>Breakthrough Science Society, Trivandrum Chapter</b> <ul style="list-style-type: none"><li>To promote science among students &amp; general public.</li><li>To provide students access to seminars and talks by notable researchers free of cost.</li></ul>	5/2021
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## POSITIONS OF RESPONSIBILITIES

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<b>Deputy Speaker</b> Student Affairs Council (SAC) - NIT Calicut, <ul style="list-style-type: none"><li>I was entrusted with coordinating all the activities pertaining to student body including the research community.</li></ul>	2021-2022
<b>Student Coordinator</b> Science Centre- St Berchmans College, Changanassery, <ul style="list-style-type: none"><li>I researched and hosted an Inter departmental science quiz.</li><li>Organised an Astronomy workshop and various sky watching sessions.</li><li>Hosted science exhibitions as part of the science centre.</li></ul>	2018-2020
<b>Secretary</b> Physics Department Association- St Berchmans College, Changanassery <ul style="list-style-type: none"><li>I was instrumental in initiating several programmes and activities in the college on behalf of the association.</li><li>Organized an All Kerala Inter Collegiate Quiz and presentation competition.</li></ul>	2019-2020
<b>HRD Team Excellence Member</b> Human Resource Department- St Berchmans College, Changanassery 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'. <ul style="list-style-type: none"><li>I was able to co-ordinate with my team to organize several programmes in the college.</li><li>Organized several National and International seminars in the college.</li></ul>	2018-2019

## ACHIEVEMENTS

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<b>MG University Kalolsavam Quiz</b> Represented St Berchmans College at MG University Kalolsavam and bagged the runner up position for the consecutive years 2019 and 2020.	
<b>Winner - Major Science Quiz Competitions</b> 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.

## CONFERENCES AND WORKSHOPS

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<b>Sagan Exoplanet Summer Workshop on "Circumstellar Disks and Young Planets"</b> NASA Exoplanet Science Institute, California Institute of Technology in Pasadena, CA.	2021
<b>IIA Summer Programme 2021</b> Indian Institute of Astrophysics	2021
<b>E-Workshop on LaTeX 2021</b> GITAM Deemed to be University	2021
<b>Creative Science Workshop 2012</b> Kerala State Science and Technology Museum (KSSTM), Trivandrum	2019

## 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.