

MAYUKH BAGCHI

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FIELD OF INTEREST

- Star Formation
- Astronomical Instrumentation
- Radio Astronomy
- VLBI

SKILLS

DESIGNING

- Adobe Design Suite
- Canva
- Premier Pro & Final Cut

PROGRAMMING

- Python
- MATLAB
- Xilinx Vivado
- C++

LANGUAGES

- English
- Hindi
- Bengali

PROJECTS/ PUBLICATIONS

- Balloon-bornE VLBI experiment (BVEX)
- Wireless Charging Scheme for Medium Power Range Application System - IJPEDS (ijpeds.v11.i4.pp1979-1986).
- Solar power electric racing car for team Solareon ,SRMIST
- H- Bridge inverter for Wireless Power Transfer.
- Smart IoT-enabled Dustbin using ML and Image Processing.
- Swarm Robotics for surveillance.
- IoT enabled smart home devices with voice control.

AWARDS

DEPARTMENT OF PHYSICS, ENGINEERING PHYSICS AND ASTRONOMY

- Harold M. Cave Travel Scholarship

CURRENT POSITION

GRADUATE STUDENT (MSC, PHD)

QUEEN'S UNIVERSITY | SEPTEMBER 2021 - PRESENT

- Studying magnetic fields of star-forming cores throughout various stages of evolution using polarized dust emissions
- Working on project BVEX which aims to do VLBI from a balloon-borne radio telescope
- Developing a "tone-tracking" algorithm for efficient MKID detector read-outs for CCAT-prime

EXPERIENCE

TEACHING ASSISTANT

QUEEN'S UNIVERSITY | SEPTEMBER 2021 - PRESENT

- Head TA for undergraduate engineering physics lab course
- Experimental design for undergraduate electronics lab
- Worked as a TA for an undergraduate thermodynamics course

RESEARCH ASSISTANT

PURDUE UNIVERSITY | NOVEMBER 2020 - JUNE 2021

- Worked under Prof. Rafael Lang's Dark Matter group for project "Windchime"
- Developed a theoretical model to detect Dark Matter using accelerometers
- Worked on sensor data acquisition, storage, and analysis

SUMMER INTERN

VARIABLE ENERGY CYCLOTRON CENTRE | APR 2019 - JUL 2019

- Designed a 20kV, 15mA Inflector Power supply using switched-mode schemes for the Superconducting Cyclotron
- Studied radiation damage, ECR Ion source and cryogenic system
- Built a Charged Particle Detector to study various nuclear properties

ORGANIZER

ASTROPHILIA, SRMIST | FEB 2018 - JULY 2021

- Established a club based on Astrophysics and Cosmology affiliated with SRMIST
- Conducted lecture-based workshops on various topics of physics and cosmology
- Organized various guest lectures sessions by experts from MIT, UC Berkley and BARC

CASCA 2022

- Runners up for best poster by CASCA student committee

DEPARTMENT OF PHYSICS AND NANOTECHNOLOGY, SRM IST

- First Prize for Physics Project 2017

DEPARTMENT OF EEE, SRM IST

- Merit Based Scholarship for securing 3rd Position in EEE Department 2016
- Merit Based Scholarship for securing 7th Position in EEE Department 2017
- Merit Based Scholarship for securing 6th Position in EEE Department 2018
- Merit Based Scholarship for securing 3rd Position in EEE Department 2019

INDUS VALLEY WORLD SCHOOL

- First Position in CBSE Mathematics, batch of 2020
- Overall Achievers Award, 2014, 2nd runner up

EXTRA-CURRICULAR

- Running an youtube channel promoting science communication and astronomy outreach (youtube.com/@mayukh_bagchi/)
- Volunteering for Queen's observatory open house(Astronomy outreach)
- Volunteered for Science-Rendezvous, the biggest science pop-up discovery center in Canada
- Teaching underprivileged kids at Sivananda Ashram, Chennai subjects like Science, English, and Mathematics
- NGO - Hope for Humanity where I served the poor with monthly ration and basic amenities
- Powerlifting and Fitness(current best : 180kg Squat, 120kg bench, 210kg Deadlift)

SUMMER INTERN

SAHA INSTITUTE OF NUCLEAR PHYSICS |APR 2018 - JUL 2018

- Studied the behavior of a multi-particle system using statistical mechanics and VPython
- Got an in-hand experience of working with an electron microscope under which I studied the lattice structure and packing efficiency of a cadmium sulphide crystal

ELECTRONICS ENGINEER

SOLAREON, SRMIST |OCT 2017 - JUL 2018

- Worked as an Electronics lead where I developed a wireless CAN protocol for the solar electric car, which won the most innovative award at SUVC 2018
- Got hands-on experience in building a solar electric car from scratch
- Studied the physics of Solar Cells and how they can impact our current energy scenario

WINTER INTERN

CESC LIMITED |DEC 2017 - FEB 2018

- Worked as Winter Intern in the peak load Thermal Power Plant
- Got an in-hand experience on the Power Plant operation and how the Rankine Cycle functions in the closed loop operation of the Plant
- Worked on the ALFC and AVR loops implemented in maintaining a constant voltage and Frequency

EDUCATION

PHD. CANDIDATE , ASTRONOMY AND ASTROPHYSICS

QUEEN'S UNIVERSITY |SEPT 2023

MASTERS , ASTRONOMY AND ASTROPHYSICS

QUEEN'S UNIVERSITY | SEPT 2021 SEPT 2023

- CGPA : 4.0
- Star formation and instrumentation

BACHELOR OF TECHNOLOGY , ELECTRICAL AND ELECTRONICS

SRM INSTITUTE OF SCIENCE AND TECHNOLOGY | MAY 2016- JULY 2020

- CGPA : 9.23 | Percentage : 92.5
- College has been about exploring my interests in physics, mathematics and technology
- Have been involved in various clubs, teams, groups and events

SENIOR SECONDARY , CBSE CLASS XII (SCIENCE)

INDUS VALLEY WORLD SCHOOL| MAR 2014 - APR 2016

- Percentage : 88.8
- Studied Mathematics, Physics, Chemistry, Computer Science and English