B Hareesh Gautham

bhareeshg@gmail.com
c/o Dr B P BHASKAR, NBSS and LUP, Regional Centre, Hebbal, Bengaluru, Karnataka, India-560024
(+91) 9666819471

EDUCATION

M.Sc.(Hons.) Physics and B.E.(Hons.) Computer Science - (2011-2016)
Birla Institute of Technology and Science-Pilani.

Class XII - (2011)
Kendriya Vidyalaya Ajni, Nagpur(Central Board of Secondary Education).

Class X - (2009)
Kendriya Vidyalaya Ambajhari, Nagpur(Central Board of Secondary Education).

THESIS

Physics:
Study of Structure formation in Universe using N-Body simulations - (Aug 2015 - Dec 2015)

- Supervisor: Dr. Rahul Nigam, BITS-Pilani, Hyderabad campus.
- Ran multiple cosmological N-Body simulations using GADGET-2.
- Wrote codes to:
  - Find halos in the simuation output (Snapshots). Wrote FOF and Heirarchial halo finders.
  - Plot theoretical halo mass functions.
- Work on this topic is being continued and a new method for building halo merger trees using association rule analysis is implemented. This work is in the process of being published.

Computer Science:
Application of Big-Data techniques to Astronomy - (Jan 2016- July 2016)

- Supervisor: Prof. Ajit Kembhavi, IUCAA-Pune.
- Thesis work aimed at identifying point sized objects by analysing their Spectral energy distributions(SEDs) built using photometric data.
- Wrote codes to:
  - Build SEDs of millions of potential quasar objects using photometry data at different wavelengths from multiple surveys like SDSS, FIRST, 2MASS and ALLWISE. It involved writing a cross matching program which could identify a given object in multiple catalogs.
  - Use VO serivices like TAP and ADQL.

RESEARCH INTERNSHIPS

Summer Research Fellow, Summer 2014
Indian Institute of Science, Bangalore

- Supervisor: Dr Prateek Sharma, IISc. Bangalore.
- Wrote code to do N-Body plasma simulations.
- Reproduced some well known results including two beam instability and landau damping.

Summer Intern Summer 2013

Inter University Center for Astronomy and Astrophysics, Pune

- Supervisor: Prof. Kandaswamy Subramanian,IUCAA
- Reproduced some well known results including Bondi accretion, nozzle flow and Chevalier and Clegg wind solution.
- Some results were verified by solving the equations numerically.

PROJECTS

Nucleosynthesis by r-process Aug 2013 -May 2015

- Supervisor: Dr Sarmistha Banik, BITS-Pilani, Hyderabad Campus
- Code was written in Java to do NSE and static r-process mass abundance calculations
- Code results were verified against other available codes (for example r-Java, Quark Nova group, University of Calgary)

Transportation through Quantum Dot Aug 2014-Dec 2014

- Supervisor: Dr. Swarnali Bandhopadhyay, TCIS-Hyderabad.
- Code was written to solve wave function of electrons in nano structures like quantum wires using tight binding model.

INDUSTRY EXPERIENCE

Engineer Associate, Qualcomm India Pvt. Ltd July-2016 - Present

PUBLICATIONS

DAE Symposium for nuclear Physics.
Smita Lenka, S., Hareesh Gautham,B. and Sarmistha Banik.2015.
Nucleosynthesis in decompressed Neutron stars crust matter .
Proceedings of the DAE-BRNS Symp. on Nucl. Phys. 60 :844-845

Nucleosynthesis in neutron stars crust
Smita Lenka, S., Hareesh Gautham,B. and Sarmistha Banik.2015.
Nucleosynthesis in Neutron Stars Crust.
Journal of Nuclear Physics, Material Sciences, Radiation and Applications Vol. 3, No. 1, August 2015,pp.103-109

FELLOWSHIPS

Junior Research Fellowship, Council of Scientific and Industrial Research, 2016

- Secured all India rank of 84 in the National Eligibility Test held on June 19, 2016.

Summer Research Fellow, Summer Research Fellowship Program, Indian Academy of Sciences, Bangalore, May-July 2014

- Worked under the supervision of Dr. Prateek Sharma, Indian institute of science, Bangalore on a project entitled "Basics of Plasma Simulations using Particles in a Cell Method".

LEADERSHIP ACTIVITIES

Secretary, Physics Association. Aug 2013-May 2014
Birla Institute of Technology and Science-Pilani, Hyderabad Campus.

COMPUTER LANGUAGES

C, Java, MATLAB, Python, mySQL, Git

LINK TO MY WORK https://github.com/bhareeshg

REFERENCES

Prof. Ajit Kembhavi, Emeritus Professor, Inter-University Centre for Astron and Astrophysics-IUCAA. Email: akk@iucaa.in

Dr. Rahul Nigam, Assistant Professor, Department of Physics, Birla institute of Technology and Sciences- Hyderabad campus. Email: rahul.nigam@hyderabad.bits-pilani.ac.in

Dr. Sharmistha Banik, Assistant Professor, Department of Physics, Birla institute of Technology and Sciences- Hyderabad campus. Email: sarmistha.banik@hyderabad.bits-pilani.ac.in

Dr. Prateek Sharma, Assistant Professor, Department of Physics, Indian Institute of Science, Bangalore. Email:prateek@physics.iisc.ernet.in