Mohit Bhardwaj

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EDUCATION

Physics Department, McGill University, Montreal **September 2017 – current**
1st year PhD candidate, Physics
Supervisor: Prof Matt Dobbs and Prof Vicky Kaspi

Birla Institute of Technology and Science, Pilani **August, 2012 - July, 2017**
M.Sc. (Hons.) Physics and B.E.(Hons.) Electrical and Electronics Engineering
GPA – 8.98/10
Awarded "Over-all Best Student 2015-2016" Award by Physics Department, BITS Pilani

Lilawati Vidya Mandir Senior Secondary School, Delhi **May, 2011**
All India Secondary School Examination, 2009 – 90.4%
Senior School Certificate Examination, 2011 – 85.2%
Awarded "Golden Boy of Batch 2011" Award

THESIS

Construction of 3.7-meter Radio Telescope for H1 mapping **August 2016 – December 2016**
Supervisor – Prof. Debashis Bandyopadhyay, BITS Pilani, Pilani, India
Co-Supervisor: Prof. Bhal Chandra Joshi, National Centre for Radio Astrophysics, Pune, India
: Dr. Praveen Kumar A.V, BITS Pilani, Pilani, India
Awarded – "*I.J.Nagrath Research innovation award 2016*" which provides 35,000 INR for the construction of 3.7-meter Radio telescope at BITS Pilani Campus

Epoch of Reionisation Studies: understanding artefacts in the data due to shape of the telescope beam (MWA) **December 2016 – June 2017**
Supervisor **–** Prof. Rachel Webster, University of Melbourne
Fellowship – *CAASTRO student fellowship award*
CAASTRO International Student Member, ID: 886262

RESEARCH EXPERIENCES

University of Alberta, Alberta, Canada **May 2016 - August 2016**
Research Assistant in under Prof. Erik Rosolowsky, Physics Department
- Working in the development of optimal deconvolution algorithm for interferometric imaging.
- Study the properties of Molecular clouds from the data taken by ALMA.

National Centre for Radio Astrophysics, Pune, India **December 2015 – January 2016**
Research Assistant under Prof. Yashwant Gupta, Dean GMRT, India
- Explored some aspects of pulsars and the interstellar medium like DM, RM and Scintillation effect.
- Perform Pulsar timing analysis for few Pulsars using Presto and Tempo.
- Studied the Polarization effect on radiation received from the Pulsar.
- Analyzed different algorithm like coherent and incoherent dedispersion and work on some algorithms for software implementation in GMRT.

Birla Institute of Technology and Science, Pilani, India **August 2015 – December 2015**

Course taken under Prof. Biswanath Layek, Assistant Professor, BITS Pilani

- Studied major aspects of High Energy Physics, Particle physics, statistical physics and relativistic effects associated with compact objects (Majorly Neutron Star).
- Simulated TOV equation using MATLAB for Equations of state like constant mass density, Polytrophic.

Central Electronics Engineering Research Institute, Pilani, India **May 2015-July 2015**

Research assistant in Department of Photonics, under Prof. Rahul Singhal, BITS Pilani

- Studied GaN LED fabrication stages and method of wafer bounding and Laser lift off.
- Analysed and optimize the system sensitivity for variables like temperature, Laser parameters and material selection. Simulated the result using COMSOL.

Inter-University Centre for Astronomy and Astrophysics, Pune, India **December 2014-January 2015**

Research student under Prof. Joydeep Bagchi

- Did a preliminary study of Super-Massive Black Hole and presented the poster on the latter at RAWSC 2014 poster symposium, IUCAA

Inter-University Centre for Astronomy and Astrophysics, Pune, India **December 2014-January 2015**

Summer Research Intern under Prof. Kanak Saha, IUCAA

- The Project was based on computing gravitational force and potential on N-body system for which, the Gaussian softening kernel was explored and simulated to compute the potential and force for a simulated gravitating systems like star clusters, galaxy.

Inter-University Centre for Astronomy and Astrophysics, Pune, India **December 2013-January 2014**

Research student under Prof. Joydeep Bagchi

- Participated in the Cosmic ray Meon experiment and through observed data, we successively proved its consistency with special relativity and quantum field theory.

TEACHING AND ADMINISTRATIVE EXPERIENCE

Research Assistant, School of Physics, University of Melbourne, Australia	**December 2016-June 2017**
CAASTRO student membership, 2017, University of Melbourne, Australia	**December 2016-June 2017**
Teaching Assistant, Electrical Science Course, BITS Pilani	**January 2016 – May 2016**
Information Division Student Coordinator, BITS Pilani	**January 2016 – May 2016**
Student Nucleus Member, Student Welfare Division, BITS Pilani	**May 2015 – August 2015**
BITS Founder day events Coordinator, BITS Pilani	**February 2015 – March 2015**
Teaching volunteer (High School), Nirmaan Organization, Pilani Chapter	**August 2012 – May 2015**
Teaching Assistant, Teach For India, Delhi	**April 2013 – July 2013**
Tutor, High School Physics and Mathematics, Bansal Coaching Centre, Delhi	**May 2011 – July 2011**

PARTICIPATION IN WORKSHOPS AND SEMINARS

MWA RTS WORKSHOP **6th February 2017- 8th February 2017**

Organized by Cutin University, Western Australia

SKA INDIA CONSORTIUM MEETING 2016 **13th January 2016 – 15th January 2016**

Organized by NCRA-TIFR, Pune

NEUTRON STAR WORKSHOP 2016 **6th January 2016 – 13th January 2016**

Organized by NCRA-TIFR, Pune

PULSAR OBSERVATORY FOR STUDENTS (POS) 2015 **13rd October 2015 – 22nd October 2015**
At Ooty Radio Centre (ORT), Ooty, Tamil Nadu, India

RADIO ASTRONOMY WINTER SCHOOL **12nd December 2014 – 21st December 2014**
At National Centre for Radio Astronomy (NCRA)- TIFR, India

TELESCOPE MAKING WORKSHOP **24th March 2014 – 29th March 2014**
At BITS Pilani, India

INTRODUCTORY SUMMER SCHOOL IN ASTRONOMY AND ASTROPHYSICS 10th May 2013 – 12th May 2013
At Inter University centre for astronomy and Astrophysics (IUCAA), Pune, India

CONFERENCES ATTENDED

"Canadian Radio Astronomy: Surveying the Present and Shaping the Future", Montreal QC, Canada: 13th September – 14th September, 2017
ASTROSOMA 2018, Moscow, Russia : Summer School and conference on Modern Astrophysics: 2nd July - 13th July 2017
OzSKA 3 meeting, University of Sydney, Australia: 8th May-9th May 2017
From field to clusters: H1 as a tracer of Galaxy Evolution, Swinburne Institute of Technology, Australia: 8th March-10th March 2017
Connecting Astrophysical Dark Matter with Direct Detection, University of Melbourne, Australia: 30th January-1st February 2017

List of Poster Presentation

Bhardwaj, M., Rosolowsky, E., **Optimum cleaning algorithm for interferometric Imaging,** Annual MITACS conference, 28th March 2016

AWARDS AND HONOURS

Ragan Graduate award, McGill University	**September 2017**
Mitacs Graduate Fellowship	**August 2017**
Mitacs Globalink Research Internship Award	**May 2016**
APOGEE best project in Physics Science Category	**March 2014**
BITS Pilani Merit Scholarship	**June 2013**
BITSAA Best APOGEE Project Award	**April 2013**
Gold Medal (State 3rd Rank), Open Physics Merit Test	**April 2011**
Silver Medal (State 3rd Best performer), National Science Olympiad 2010	**March 2010**
"Best Student Performer" Award (North Delhi School Region)	**March 2009**
Gold Medal (Qualified in top 5 percentile), Astronomy Olympiad	**February 2009**

SKILLS

Amateur HAM operator (License - Junjhunu district, Rajasthan, India)

Software tools: Octave, GNUPlot, MatLAB Simulink, Latex, COMSOL, Proteus, ANSYS HFSS, ISE Xilinx tools, PRESTO, TEMPO-2, CASA, LT Spice, CST microwave studio, CAD FEKO

Programming Languages: C, C++, SQL, Python, R

Operating system: UNIX, Windows

MAJOR LEADERSHIP RESPONSIBILITY

Founder and President, The Radio Astronomy Club(TRAC), BITS Pilani	**December 2015 – July 2017**
President, Renewable energy Club, BITS Pilani	**August 2014 – July 2015**
Vice President, Capitol, Delhi Cultural Society, BITS Pilani	**August 2014 – July 2015**
Secretary, Physics Society, BITS Pilani	**August 2014 – July 2015**
Treasurer, Astronomy club, BITS Pilani	**August 2014 – July 2015**
Sport's Fest Coordinator, BITS Pilani	**August 2013 – October 2013**

REFERENCES

Prof. Matt Dobbs
Professor of Physics,
Physics Department,
McGill University, Quebec,
Canada
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Prof. Erik Rosolowsky
Associate Professor,
Department of Physics,
University of Alberta, Edmonton,
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Prof. Victoria M. Kaspi
Professor of Physics,
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