

MUBDI RAHMAN

Department of Physics and Astronomy
Johns Hopkins University
3400 N. Charles St., Baltimore, MD, 21218, USA

mubdi@jhu.edu
<http://www.mubdirahman.com/>
Ph: +1-443-838-6400

Research Interests

Star Formation: Galactic Massive Star Clusters and Associations; Stellar Feedback; Observations & Simulations
Extragalactic: Clustering Redshift Inference; Spatial Clustering; Data Analysis

Academic History

09/2015 – Present **Assistant Research Scientist**, Department of Physics & Astronomy, Johns Hopkins University
09/2012 – 08/2015 **Postdoctoral Fellow**, Department of Physics & Astronomy, Johns Hopkins University
06/2012 **Ph.D. (Astronomy & Astrophysics)**, University of Toronto, Supervisors: C. Matzner & D-S. Moon
Thesis Title: The Milky Way's Most Luminous Star Clusters: Engines of Galaxy Evolution
05/2007 **Hons. B. Sc. (Astronomy & Physics)**, University of Toronto

Selected Scholarships & Awards

09/2016 **Dean's Teaching Postdoctoral Fellowship**, Johns Hopkins University
02/2012 **Fieldus Award**, University of Toronto, Department of Astronomy & Astrophysics
01/2012 **Rodger Doxey Travel Prize Honorable Mention**, American Astronomical Society
04/2011 **Adel S. Sedra UTAA Graduate Scholar**, University of Toronto
04/2007 **Gordon Cressy Student Leadership Award**, University of Toronto
05/2003 **Canadian Millennium Scholarship Foundation Provincial Excellence Award**

Selected Invited Talks

06/2016	Radboud University Nijmegen , Seminar	10/2013	University of Pennsylvania , Astronomy Seminar
02/2016	University of Toronto , Colloquium	05/2013	National Research Council Herzberg , Colloquium
08/2015	Perimeter Institute , Cosmic Flows Workshop		
03/2014	University of Pittsburgh , AstroLunch	04/2013	University of Delaware , Astronomy Seminar
11/2013	Johns Hopkins University , JHU/Goddard Interaction Day	01/2013	Goddard Space Flight Center, NASA , Stellar and Extragalactic Astronomy Lunch

Selected Observing Time

2014 **PI, 150 ks, Chandra X-Ray Observatory, Cycle 16:** "X-Ray Investigation of the Most Luminous OB Association in the Galaxy"
2014 **Co-I, 9 Orbits, Hubble Space Telescope, Cycle 22:** "The Smith Cloud: Galactic or Extragalactic?" (PI: A. Fox)
2013 **Co-I, 6 Orbits, Hubble Space Telescope, Cycle 21:** "Siblings of Massive Stars: Extreme End of the Companion Mass Function" (PI: S.E. De Mink)
2013 **Co-I, 1 Orbit, Hubble Space Telescope, Cycle 21:** "The massive monsters living deep in the Tarantula nebula" (PI: S. E. De Mink)
2011 **PI, 25.5 Hours, Expanded Very Large Array, Semester 11B:** "Continuum Component-Separated Mapping of SINGS Galaxies: Pilot Study of NGC 2403"
2011 **PI, 50 Hours, Mopra Telescope, April 2011 Semester:** "Mapping the Natal Molecular Cloud of the Dragonfish Cluster"
2010 **PI, 5 Nights, NTT SOFI, Semester 86:** "Near Infrared Spectroscopy of Candidate O-stars in the Candidate Massive Cluster at G298.4 -0.4"

Students Supervised

- 2016 – 2017 Patrick Breyse (PhD Project, paper: 2017, MNRAS, 468, 741)
- 2013 – 2016 Zack Dugan (PhD Project, paper: 2017, ApJ, 839, 103), co-supervised with Prof. J. Silk
- 2010 – 2011 Brent Arsenault (Summer Project & Undergraduate Thesis), co-supervised with Prof. C. Matzner
- 2010 – 2011 Eve Lee (Summer Project & Undergraduate Thesis, paper: 2012, ApJ, 752, 146), co-supervised with Prof. N. Murray, University of Toronto (currently Graduate Student at UC Berkeley)
- 2010 Heidi White (Undergraduate Summer Project), co-supervised with Prof. C. Matzner, University of Toronto (currently Graduate Student at University of Toronto)
- 2007 Lisa Einstein (High School Summer Internship), co-supervised with Prof. P. G. Martin, University of Toronto

Selected Teaching Experience

- 2016 Instructor, AS.171.127: The Unsolved Mysteries of the Cosmos, *Johns Hopkins University*
- 2014 Instructor, AS.171.216.13: The Unsolved Mysteries of the Cosmos, *Johns Hopkins University*
- 2011 – 2012 Tutorial and Laboratory Leader, AST 325/326: Practical Astronomy, *University of Toronto*
- 2010 – 2011 Teaching Assistant, AST 221H1F: Stars and the Solar System and AST 222H1S: Galaxies & Cosmology, *University of Toronto*
- 2010 Head Teaching Assistant, AST 201H1S: Stars and Galaxies, *University of Toronto*

Selected Outreach Activities

- 2009 – 2016 **Coordinator, Various Projects**, Canada Wide Science Fair, Youth Science Canada (*National Championship Science Fair for Gr. 7-12*)
- 2012 **Organizing Committee**, Transit of Venus Public Viewing Event, University of Toronto (*5000 Attendees*)
- 2008 – 2010 **Site Chair**, Science Rendezvous at the University of Toronto, University of Toronto (*Day long outdoor science festival, 25 000 Attendees over 3 years*)
- 2006 – 2009 **FIRST Robotics Competition Mentor**, West Humber Collegiate Institute, Toronto, Ontario

Selected Service Activities

- 2016 – Present **Organizer**, Visualization Discussion Group, JHU
- 2012 – 2014 **Organizing Committee**, CoolSci & HotSci Seminar Series, STScl and JHU
- 02/2011 **Symposium Chair**, Science Illustrated: A Symposium on Visualizing Science, University of Toronto (*200 Attendees*)
- 05/2009 **Local Organizing Committee**, Annual General Meeting of the Canadian Astronomical Society, University of Toronto (*300 Attendees*)
- 07/2008 **Conference Co-Chair**, Local Organizing Committee, Workshop on Parallel Computing in Astrophysics, Canadian Institute for Theoretical Astrophysics (*60 Attendees*)

References

Christopher Matzner

Dept. Astronomy and Astrophysics
University of Toronto
matzner@astro.utoronto.ca

Norman Murray

Canadian Institute for Theoretical
Astrophysics
murray@cita.utoronto.ca

Colin Norman

Dept. of Physics and Astronomy
Johns Hopkins University
norman@stsci.edu

Dae-Sik Moon

Dept. Astronomy and Astrophysics
University of Toronto
moon@astro.utoronto.ca

Peter Martin

Canadian Institute for Theoretical
Astrophysics
pgmartin@cita.utoronto.ca

Joe Silk

Institut d'Astrophysique de Paris
silk@iap.fr

Refereed Publications

First Author Publications

7. **Rahman, M.**, Mendez, A.J., Ménard, B., Scranton, R., Schmidt, S., Morrison, C., Budavári, T., “Exploring the SDSS photometric galaxies with clustering redshifts”, 2016, MNRAS, 460, 163
6. **Rahman, M.**, Ménard, B., Scranton, R., “Exploring the 2MASS extended and point source catalogues with clustering redshifts”, 2016, MNRAS, 457, 3912
5. **Rahman, M.**, Ménard, B., Scranton, R., Schmidt, S., Morrison, C., “Clustering-based Redshift Estimation: Comparison to Spectroscopic Redshifts”, 2015, MNRAS, 447, 3500
4. **Rahman, M.**, Matzner, C.D., Moon, D-S., “OB Associations at the Upper End of the Milky Way Luminosity Function”, 2013, ApJ, 766, 135
3. **Rahman, M.**, Moon, D-S., Matzner, C. D., “Spectroscopic Confirmation of the Dragonfish Association: The Galaxy's Most Luminous OB Association”, 2011, ApJL, 743, 28
2. **Rahman, M.**, Matzner, C. D., Moon, D-S. “A Candidate for the Most Luminous OB Association in the Galaxy”, 2011, ApJL, 728, 37
1. **Rahman, M.**, Murray, N. “A New Sample of Very Massive Star Forming Complexes in the Spitzer Glimpse Survey”, 2010, ApJ, 719, 1104

Contributing Author Publications

15. Kovetz, E., Raccanelli, A., **Rahman, M.**, “Cosmological Constraints with Clustering-Based Redshifts”, 2017, MNRAS, 468, 3650
14. Breyse, P., **Rahman, M.**, “Feeding Cosmic Star Formation: Exploring High-Redshift Molecular Gas with CO Intensity Mapping”, 2017, MNRAS, 468, 741
13. Ochsendorf, B., Meixner, M., Roman-Duval, J., **Rahman, M.**, & Evans, N., “Massive Star Formation Rates and Efficiencies of Giant Molecular Clouds”, 2017, ApJ, accepted, arXiv:1704.06965
12. Dugan, Z., Gaibler, V., Bieri, R., Silk, J., & **Rahman, M.**, “AGN Outflow Shocks on Bonner-Ebert Spheres”, 2017, ApJ, 839, 103
11. Lee, B., Budavari, T., Basu, A., & **Rahman, M.**, “Galaxy Redshifts from Discrete Optimization of Correlation Functions”, 2016, AJ, 152, 155
10. SDSS collaboration inc. **Rahman, M.**, “The Thirteenth Data Release of the Sloan Digital Sky Survey: First Spectroscopic Data from the SDSS-IV Survey MApping Nearby Galaxies at Apache Point Observatory”, 2016, ApJS, submitted, arXiv:1608.02013
9. Fox, A.J, Lehner, N., Lockman, F.J., Wakker, B.P., Hill, A.S., Heitsch, F., Stark, D.V., Barger, K.A., Sembach, K.R., **Rahman, M.**, “On the Metallicity and Origin of the Smith High-velocity Cloud”, 2016, ApJL, 816, 11
8. Alam, S., SDSS-III collaboration inc. **Rahman, M.**, “The Eleventh and Twelfth Data Releases of the Sloan Digital Sky Survey: Final Data from SDSS-III”, 2015, ApJS, 219, 12
7. Newman, J., LSST-DESC Photometric Redshift Collaboration inc. **Rahman, M.**, “Spectroscopic Needs for Dark Energy Experiments”, 2015, Astroparticle Physics, 63, 81
6. Schmidt, S., Ménard, B., Scranton, R., Morrison, C., **Rahman, M.**, Hopkins, A., “Inferring the Redshift Distribution of the Cosmic Infrared Background”, 2015, MNRAS, 446, 2696
5. Ahn, C., SDSS-III collaboration inc. **Rahman, M.**, “The Tenth Data Release of the Sloan Digital Sky Survey: First Spectroscopic Data from the SDSS-III Apache Point Observatory Galactic Evolution Experiment”, 2014, ApJS, 211, 17
4. Ménard, B., Scranton, R., Schmidt, S., Morrison, C., Jeong, D., Budavari, T., **Rahman, M.**, “Estimating redshift distributions with spatial correlations: method and application to data”, MNRAS, submitted, arXiv:1303.4722

3. Lee, H-G., Moon, D-S., Koo, B-C., **Rahman, M.**, et al., *“Wide Integral-field Infrared Spectroscopy of the Bright [Fe II] Shell in the Young Supernova Remnant G11.2-0.3”*, 2013, ApJ, 770, 143
2. Lee, E.J., Murray, N., **Rahman, M.**, *“Milky Way Star-forming Complexes and the Turbulent Motion of the Galaxy’s Molecular Gas”*, 2012, ApJ, 752, 146
1. Murray, N., **Rahman, M.** *“Star Formation in Massive Clusters Via the Wilkinson Microwave Anisotropy Probe and the Spitzer Glimpse Survey”*, 2010, ApJ, 709, 424

Non-Refereed Publications

2. Schmidt, S., LSST DESC Photometric Redshift Collaboration inc. **Rahman, M.** *“Spectroscopic Needs for Calibration of LSST Photometric Redshifts”*, 2014, White paper submitted to the National Research Council Committee on a Strategy Optimize the U.S. O/IR System in the Era of the LSST
1. Abate, A., LSST DESC Photometric Redshift Collaboration inc. **Rahman, M.** *“Spectroscopic Needs for Training of LSST Photometric Redshifts”*, 2014, White paper submitted to the National Research Council Committee on a Strategy Optimize the U.S. O/IR System in the Era of the LSST