Curriculum Vitae

Md. Wali Hossain
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Personal Details

Name	Md. Wali Hossain
Date of Birth	2nd August, 1985
Sex	Male
Nationality	Indian
Current Position	Assistant Professor
Institute	Department of Physics, Jamia Millia Islamia, New Delhi

Ph.D. Thesis

Thesis Title	Aspects of Dark Universe in the Modified Theories of Gravity
Supervisor	Prof. M. Sami
Co-supervisor	Prof. Anjan A. Sen
Institute	Centre for Theoretical Physics (CTP), Jamia Millia Islamia, New Delhi, India
Year	2016.

Professional Experience

Sep, 2020 – Present	Assistant Professor, Department of Physics, Jamia Millia Islamia, New Delhi, India.
Sep, 2019 – Sep, 2020	Postdoctoral Fellow, Center for High Energy Physics (CHEP), Kyungpook National University (KNU), Daegu, South Korea.
Oct, 2016 – Aug, 2019	Postdoctoral Fellow, Asia Pacific Center for Theoretical Physics (APCTP), Pohang, South Korea.
Aug, 2015 – Sep, 2016	Postdoctoral Fellow, Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune, India.

Education

2010–2016	Ph.D. (Physics), Centre for Theoretical Physics, Jamia Millia Islamia, New Delhi, India.
2006–2008	M.Sc. (Physics), Jadavpur University, Kolkata, India.
2003–2006	B.Sc. (Physics (Hons.)), University of North Bengal, Siliguri, India.

Research Interests

- Cosmology
- Inflation and Dark Energy
- Large Scale Structure
- Modified Theories of Gravity

Teaching Experience

Sep, 2008–Jul, 2009 | Department of Physics, Malda College, Malda, WB, India

Courses Taught

- Electrostatics – 1st year B.Sc. Physics (Hons.).
- Thermodynamics and Lab Courses– 2nd year B.Sc. Physics (Hons.).
- Special Theory of Relativity – 3rd year B.Sc. Physics (Hons.).

Awards/Fellowships

- 2006, University silver medal (2nd rank) in B.Sc. Physics (Hons.).
- 2006, Scholarship and gold medal in the National Graduate Physics Examination (NGPE) conducted by Indian Association of Physics Teachers (IAPT).
- June 2008, December 2008 and June 2009, National Eligibility Test (NET) with UGC, CSIR and CSIR fellowship respectively.
- July 2015, INSPIRE Faculty Award, Department of Science & Technology, Government of India (Declined).
- 2019, National Post Doctoral Fellowship (N-PDF), Science and Engineering Research Board (SERB) (Declined).

List of Publications

Review Articles

1. M. W. Hossain, R. Myrzakulov, M. Sami and E. N. Saridakis, **"Unification of inflation and dark energy *à la* quintessential inflation,"** Int. J. Mod. Phys. D **24**, 5 (2015) 1530014 [arXiv:1410.6100 [gr-qc]].

Research Papers

1. S. Brahma and M. W. Hossain, **"Consistency of cubic Galileon cosmology: Model-independent bounds from Pantheon data,"** arXiv:2007.06425 [astro-ph.CO].
2. J. Zhang, B. R. Dinda, M. W. Hossain, A. A. Sen and W. Luo, **"Study of cubic Galileon gravity using N-body simulations,"** Phys. Rev. D **102**, no.4, 043510 (2020) [arXiv:2004.12659 [astro-ph.CO]].
3. S. Brahma and M. W. Hossain, **"Relating the scalar weak gravity conjecture and the swampland distance conjecture for an accelerating universe,"** Phys. Rev. D **100**, no. 8, 086017 (2019) [arXiv:1904.05810 [hep-th]].
4. S. Brahma and M. W. Hossain, **"Dark energy beyond quintessence: Constraints from the swampland,"** JHEP **06** (2019) 070 [arXiv:1902.11014 [hep-th]].
5. S. Brahma and M. W. Hossain, **"Avoiding the string swampland in single-field inflation: Excited initial states,"** JHEP **03** (2019) 006 [arXiv:1809.01277 [hep-th]].
6. R. Gannouji, M. W. Hossain, N. Jaman and M. Sami, **"Bigravity and Horndeski gravity connected by a disformal coupling,"** Phys. Rev. D **99**, no. 4, 043504 (2019) [arXiv:1808.04137 [gr-qc]].
7. B. R. Dinda, M. W. Hossain and A. A. Sen, **"Observed galaxy power spectrum in cubic Galileon model,"** JCAP **1801**, no. 01, 045 (2018) [arXiv:1706.00567 [astro-ph.CO]].
8. M. W. Hossain, **"First and second order cosmological perturbations in light mass Galileon models,"** Phys. Rev. D **96**, no. 2, 023506 (2017) [arXiv:1704.07956 [gr-qc]].

9. C. Q. Geng, M. W. Hossain, R. Myrzakulov, M. Sami and E. N. Saridakis, **"Quintessential inflation with canonical and noncanonical scalar fields and Planck 2015 results,"** Phys. Rev. D **92**, no. 2, 023522 (2015), [arXiv:1502.03597 [gr-qc]].

10. M. W. Hossain, R. Myrzakulov, M. Sami and E. N. Saridakis, **"Evading Lyth bound in models of quintessential inflation,"** Phys. Lett. B **737**, 191 (2014) [arXiv:1405.7491 [gr-qc]].

11. M. W. Hossain, R. Myrzakulov, M. Sami and E. N. Saridakis, **"Class of quintessential inflation models with parameter space consistent with BICEP2,"** Phys. Rev. D **89**, 123513 (2014) [arXiv:1404.1445 [gr-qc]].

12. M. W. Hossain, R. Myrzakulov, M. Sami and E. N. Saridakis, **"Variable gravity: A suitable framework for quintessential inflation,"** Phys. Rev. D **90**, 023512 (2014) [arXiv:1402.6661 [gr-qc]].

13. K. Bamba, M. W. Hossain, R. Myrzakulov, S. Nojiri and M. Sami, **"Cosmological investigations of (extended) nonlinear massive gravity schemes with non-minimal coupling,"** Phys. Rev. D **89**, 083518 (2014) [arXiv:1309.6413 [hep-th]].

14. R. Gannouji, M. W. Hossain, M. Sami and E. N. Saridakis, **"Quasidilaton nonlinear massive gravity: Investigations of background cosmological dynamics,"** Phys. Rev. D **87**, 123536 (2013) [arXiv:1304.5095 [gr-qc]].

15. A. Ali, R. Gannouji, M. W. Hossain and M. Sami, **"Light mass galileons: Cosmological dynamics, mass screening and observational constraints,"** Phys. Lett. B **718**, 5 (2012) [arXiv:1207.3959 [gr-qc]].

16. M. W. Hossain and A. A. Sen, **"Do Observations Favour Galileon Over Quintessence?,"** Phys. Lett. B **713**, 140 (2012) [arXiv:1201.6192 [astro-ph.CO]].

Conference Papers

1. M. W. Hossain, **"Quintessential inflation: A unified scenario of inflation and dark energy,"** EPJ Web Conf. **168**, 04007 (2018) [arXiv:1801.03272 [gr-qc]].

My list of publications is also available on **iNSPIRE** and **arXiv**.