

CV (RESUME)

Faculty Name: Hameeda

Designation: Associate Professor

Subject: Physics

Area of Specialization: Astrophysics

College: Government Degree College, Tangmarg Kashmir, India

Organization: Department of Higher Education, Jammu and Kashmir, India.

Email: hme123eda@gmail.com

Date of appointment: 23-10-2007

Summary:

I have been working as Assistant professor in the department of higher education since 2007. I teach Physics in undergraduate level. I have served almost 5 years in Boys Degree college Baramulla, 8 years in S.P College Srinagar and presently am serving in Government Degree College, Tangmarg. I am Visiting Associate of Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune since 2014.

CURRENT RESEARCH INTERESTS:

Our main area of research has been clustering of galaxies in the expanding universe using Newtonian potential as the source of interaction between the galaxies. The problem has been studied for both point mass and extended systems. Statistical mechanics and thermodynamics are the general methods we adopt in analyzing the problems. We evaluate the partition function for the system under consideration and calculate the thermodynamics of system and the distribution function. Finally, we compare with the observations and N body simulations. We studied the clustering of galaxies and the structure formations in the expanding universe in the Brane world models. In another study we studied the impact of dark energy on the clustering by taking constant as well as dynamical cosmological constant into consideration in two different studies. We studied the clustering in the light of $f(R)$ geometry. We have worked on the impact of modified gravities on structure formation. We have studied the large scale structure analysis in the light of Modified Newtonian Dynamics and the Yukawa like potentials. We have few pioneer studies on non-local gravity and brane world using the Tsallis Statistics. We have extended our work to neutrino physics and have few publications. Recently we proposed the oscillatory model of gravitational potential. The study needs a deeper analysis in near future. We presently are working on Statistical approach to address the flatness issue of the galactic rotation curve. The entropic force and the emergent gravity are our new areas of promising research.



Research Projects

Completed one research project under DST J and K as Co-PI

Principal investigator of an ongoing SERB POWER Grant Project

Awards and achievements:

- 1) **Appointed as** Visiting Associate in IUCAA, Pune.
- 2) Best presentation award in Ist J and K Women's Science Conference "**Women in Science: An initiative for women scientists**", Dec. 11-13, 2012, S.P College, Srinagar.
1. 3). Invited to be a member of Canadian Quantum Research Center

Workshops, Seminars, symposia and conferences attended:

- 1) "**Young Astronomers meet, Nov. 29 to Dec. 02, 2005**", IUCAA and NCRA, Pune, India.
- 2) International Conference on "**New trends in Statistics and Optimization**", Oct. 20-23, 2008, University of Kashmir, J &K
- 3) One day Workshop on "**Advanced Computing for statistics and Optimization for young statisticians and scientists using softwares**", Oct. 22, 2008, University of Kashmir, J &K
- 4) "**4-th JK science congress**", Nov.12-14, 2008, University of Kashmir in Collaboration with JK state council for science and technology and DST, Government of India
- 5) K.U-IUCAA National Workshop "**Advances in Astronomy and Astrophysics**", Nov.03-06, 2009
- 6) **Capacity building of Women managers in Higher Education Sensitization/Awareness/Motivation Workshop**, Organized by Women's studies center and institute of home science, University of Kashmir, May.01-05, 2012, Sponsored by UGC
- 7) **Capacity building of Women managers in Higher Education Management Skills enhancement modules Workshop**, Advocacy in institutions for higher education, Organized by center for Women studies, DAV College, Sector 10, Chandigarh, Nov. 05-09, 2012, Sponsored by UGC
- 8) Ist J and K Women's Science Conference "**Women in Science: An initiative for women scientists**", Dec. 11-13, 2012, S.P College, Srinagar.
- 9) National seminar on natural resources of the north western himaliya "**threats, evaluation and conservation**", March. 26-27, 2014, S. P. College, Srinagar.

- 10) A two Day National Seminar on “Towards new horizons with interplay between Physics and Computer Science” 9th-10th June 2014.
- 11) State Level Teacher Training Workshop on Astronomy & Transit of Mercury at Govt. Girls Higher Secondary School Kothibagh, Srinagar 5-7 may, 2016. organized by Public Outreach and Education Committee of Astronomical Society of India, Vigyan Prasar, Homi Bhabha.
- 12) Participated in two days National Inter-disciplinary Conference “Science for sustainable Development” SSD-2016, 25th-26th February, 2017 Sri Pratap College, Srinagar.
- 13) Participated as organizing member in two Days State level workshop on “*Basic Techniques of Bioinformatics & Drug Designing*” held on 2nd- 3rd May, 2017 organised by the Department of Biotechnology & Bioinformatics-S.P College Srinagar.
- 14) Organised international women's day 2017 in the S.P.College Srinagar, India.
- 15) *Participated as a member of organizing committee of the Webinar Series titled Stress Pandemic-Coping and Management organized by Sri Pratap College, Srinagar, 2020.*
- 16) Organized a webinar on E-counselling for students in February, 2021.
- 17) Organized One day national seminar on Significance of interdisciplinary research in March, 2021.
- 18) Was coordinator/moderator of an International Virtual Faculty Development Program on Tools and Techniques in Research from 05-12 December 2022.

Orientation/Refresher Courses attended:

1. Four week UGC sponsored general orientation course organized from Feb, 20- March,18(2008) , University of Kashmir
2. Refresher course in experimental physics from Feb, 11-26, 2014, Department of Physics, Panjab University, Chandigarh, India.
3. Refresher course in Disaster Management from 7th dec to 29th dec, 2016 , Department of Geology Jammu University, Jammu and Kashmir, India
4. Refresher course in child and women development, November, 2017. Jammu University
5. *Attended one week online FDP on Recent trends in Material Science and Engineering by Department of Physics, School of basic Sciences and Research, Sharda University, Greater Noida, UP during May 25 -31, 2020.*
6. *Attended five day national level online FDP on Artificial Language from 22nd May, 2020 organized by Department of Computer Science and Engineering , Amravati.*
7. *Participated in three week online course on condensed matter physics organized by Government Degree College Women Sopore in collaboration with Department of Physics, Sri Pratap College and Physicomatrics Srinagar from 8th october, 2020.*
8. *Attended three week online course on Quantum Mechanics organized by Department of Physics Sri Pratap College, Srinagar with effect from 8th September, 2020.*

Research publications: (international)

1. [*Fluctuations of non-point mass galaxy distributions*](#) F Ahmad - Astrophysics and Space Science, 2010

2. [*Thermodynamic fluctuations as a probe for the study of gravitational galaxy clustering*](#)
F Ahmad, MA Malik, M Hameeda - Astrophysics and Space Science, 2013
3. [*Distribution function for the system of galaxies for any ratio of gravitational potential to kinetic energies*](#) F Ahmad, MA Malik, H Mir - Monthly Notices of the Royal Astronomical Society, 2014
4. [*Clustering of galaxies in brane world models*](#)
M Hameeda, M Faizal, AF Ali - General Relativity and Gravitation, 2016
5. [*Effects of cosmological constant on clustering of Galaxies*](#)
M Hameeda, S Upadhyay, M Faizal, AF Ali - Monthly Notices of the Royal Astronomical Society, 2016
6. [*Clustering of galaxies with dynamical dark energy*](#)
B Pourhassan, S Upadhyay, M Hameeda, M Faizal - Monthly Notices of the Royal Astronomical Society, 2017
7. [*Clustering of galaxies with \$f\(R\)\$ gravity*](#)
S Capozziello, M Faizal, M Hameeda, B Pourhassan... - Monthly Notices of the Royal Astronomical Society, 2018
8. [*Large distance modification of Newtonian potential and structure formation in universe*](#)
M Hameeda, S Upadhyay, M Faizal, AF Ali... - Physics of the dark universe, 2018
9. [*Modified theory of gravity and clustering of multi-component system of galaxies*](#)
M Hameeda, B Pourhassan, M Faizal, CP Masroor... - The European Physical Journal C, 2019
10. [*Generalized Poisson distributions for systems with two-particle interactions*](#)
M Hameeda, A Plastino, MC Rocca - IOP SciNotes, 2021
11. [*Two approaches that prove divergence free nature of non-local gravity*](#)
M Hameeda, B Pourhassan, MC Rocca, AB Brzo - The European Physical Journal C, 2021
12. [*Partition function and coherent states for the quantum multiverse*](#)
M Hameeda, MC Rocca, AB Brzo - Physics of the Dark Universe, 2021
13. [*Finite Tsallis gravitational partition function for a system of galaxies*](#)
M Hameeda, B Pourhassan, MC Rocca, M Faizal - General Relativity and Gravitation, 2021
14. [*Galaxies' clustering generalized theory*](#)
M Hameeda, A Plastino, MC Rocca - Physics of the Dark Universe, 2021
15. [*Logarithmic corrections to Newtonian gravity and large scale structure*](#)
S Capozziello, M Faizal, M Hameeda, B Pourhassan... - The European Physical Journal C, 2021
16. [*Gravitational partition function modified by superlight braneworld perturbative modes*](#)
M Hameeda, B Pourhassan, MC Rocca, AB Brzo - Physical Review D, 2021
17. [*Classical Partition Function for Non-Relativistic Gravity*](#)
M Hameeda, A Plastino, MC Rocca, J Zamora - Axioms, 2021
18. [*Generalized theory of clustering of extended galaxies with core halos*](#)
M Hameeda, A Plastino, C Rocca, DJ Zamora – 2021 , Physics of Dark Universe.
<https://doi.org/10.1016/j.dark.2021.100870>
19. [*Phenomenological Distribution of dark matter halos of galaxy comprising of stellar streams*](#)
M Hameeda, MC Rocca – 2021
Hameeda, M., Rocca, M.C. Phenomenological distribution of dark matter halos of galaxy comprising of

stellar streams. *Astrophys Space Sci* **366**, 89 (2021). <https://doi.org/10.1007/s10509-021-03996-6>

20. [Supercoherent states of the open NS world sheet superstring](#) H Mir, M Rocca - Journal of Holography Applications in Physics, 2021 - jhap.du.ac.ir
21. [The large scale structure formation in an expanding universe](#) IJMPA 2022.
M Hameeda, B Pourhassan, S Masood, M Faizal... - arXiv preprint arXiv:2007.03442, 2020
22. [Thermal-Guelfand's Effects in Two-Dimensional Gravity](#) A Plastino, M Hameeda, MC Rocca - PHYSICA-22152, 2022
23. [Comparative study of galaxy clustering using halo approximation and mean-field theory in the light of modified theories of gravity](#) HA Bagat, M Hameeda, PA Ganai - Physica Scripta, 2022
24. [Study of galaxy clustering \(thermodynamics\) through different approaches using modified Yukawa potential](#) HA Bagat, M Hameeda, PA Ganai - Modern Physics Letters A, 2022
25. [Application of thermal statistical tools to Newton's gravity](#) M Hameeda, A Plastino, MC Rocca - Acta Sci. Appl. Phys., 2022
26. [Statistical mechanics description of an empirical scenario in which gravity was discussed when coupled to a harmonic oscillator](#) M Hameeda, A Plastino, MC Rocca - International Journal of Modern Physics B, 2024
27. [Thermodynamic Properties of Strongly Gravitating Systems](#) M Hameeda, MC Rocca - Journal of Holography Applications in Physics, 2024
28. [Measurement of Atmospheric Neutrino Cross-Sections on Oxygen, Water and Argon using Nuwro Event Generator](#) IR Shaik, Q Gani, M Hameeda - Iranian Journal of Astronomy and Astrophysics, 2024
29. [Comparative analysis of thermodynamic quantities of galaxy clustering through different approaches under the modified potential](#) HA Bagat, D Shahwar, M Hameeda, PF Shah... - Physics of the Dark Universe, 2023
30. [Revisiting the Schwarzschild Black Hole Solution: A Distributional Approach](#) Q Gani, M Hameeda, B Pourhassan, MC Rocca - Physics of the Dark Universe 2024

Membership of Scientific Societies:

1. Visiting Associate of IUCAA, Pune.
2. Member of The Indian Association of Physics Teachers
3. Member of Canadian Quantum Research Center
4. Co-Supervisor of a Ph.D Scholar, NIT Srinagar

Worked as Member of Board of Research

1. Department of Physics, Kashmir University
2. Cluster University Srinagar

Number of citations= 383

h-index= 11

i10-index = 17

Books/Reports/Chapters/General articles etc.

S. No	Title	Author	Publisher	Year
1	<i>Physics: A monstrous love trap</i>	Dr Hameeda	Greater Kashmir	2016
2	Difficult, not impossible	Dr Hameeda	Greater Kashmir	2016
3	For the Students of Physics	Dr Hameeda	Greater Kashmir	2017
4	The Valley's Verses: A collection of poems on the finer things in life	Mir Hameeda	Kindle	2019

Academic Qualifications

Examination Passed	Board/University	Subjects	Year	Division/Grade/Merit
SSC	CBSC	G. Eng., Science, S. Science, Urdu, Mathematics,	1991	Distinction
Higher Secondary	CBSC	G. Eng., Chemistry, Physics, Biology, Mathematics	1993	1st Division
Bachelor's Degree	University of Kashmir, Srinagar	G. Eng., Physics, Electronics, Mathematics	1997	1st Division
Master's Degree	University of Kashmir, Srinagar	Physics	1999	First Division
M.Phil	University of Kashmir, Srinagar	Physics	2005	Grade 'O'

Research experience

Research stage	Title of work /Thesis	Univerity where work was carried out	Year
PhD	“The Study of Gravitational Galaxy Clustering in the Expanding Universe using Thermodynamic Fluctuation Theory.”	University of Kashmir	2012

Teaching experience

Courses taught	Name of University/College	Duration
UG (Physics)	Govt. Degree College Baramulla	5 Years
UG, IG, PG(Physics)	Sri Pratap College, Srinagar	8Years
UG (Physics)	Government Degree college Tangmarg, Kashmir	Present

Research Projects funded by DST J&K(UT)

S.No	Title	Cost in Lakh	Month of Submission	Role as PI/Co PI	Agency	Status
1	Neutrino Interactions: Flux and Cross-sections Measurements	5 lakh	November, 2020	Co PI	DST J&K(UT)	Completed

Details of Project Submitted/approved under SERB Power Grant

S.No	Title	Cost in Lakh	Year of Submission	Role as PI/Co PI	Agency	Status
1	Statistical Mechanics Approach to Large Scale Structure (LSS) in the Ambit of Modified Theories of Gravity	Rs 22 lacs	2021	PI	SERB	Active since 2022