Muhammad Azam

Curriculum Vitae

##### Father’s Name: Muhammad Hassan

##### Date of Birth: 03 January, 1982

Nationality: Pakistani

I am serving university of education, Lahore since September, 2005 to date.

Contact Information

##### University of Education, Lahore, Multan Campus

##### Phone: (+92) 061-99262232; Fax: (+92) 042-99262232

##### Email: azam.math@ue.edu.pk;

##### URL: <http://ue.edu.pk/beta/campus/campusFaculty.aspx?campusCode=46>

Courses taught in 2018-19 are

1. Vector and tensor analysis (BS Math V-Semester)
2. Introduction to Special Theory of Relativity (BS Math VII-Semester)
3. Mathematically Methods for Physics (BS Math VIII-Semester)

Education

* PhD.: General Relativity and Cosmology; University of the Punjab, Lahore, Pakistan, March 2014

Advisor, Prof. Dr. M. Sharif

Dissertation; **Stability Analysis: A Crucial Study in General Relativity**

* M. Phil: General Relativity and Cosmology; University of the Punjab, Lahore, Pakistan, August 2006

Advisor, Prof. Dr. M. Sharif

Dissertation;**Energy-Momentum Distribution of Some Specific Spacetimes**

* M.Sc.: Applied Mathematics, University of the Punjab, Lahore, Pakistan, 2003

Field and Research Interests

(Gravitational Theory and Astrophysics)

* Theoretical Construction of Thin-shell Wormholes
* Cracking of Compact Objects
* Stability of Self-gravitating Objects

Professional Positions

* Principal/Associate Professor of Mathematics, University of Education, Lahore, Multan Campus Multan, 22nd March, 2018 to date
* Assistant Professor of Mathematics, 28th July 2014 to 14th November, 2017 at University of Education, Lahore, Pakistan
* Lecturer in Mathematics, September 2005 to July 2014 at University of Education, Lahore, Pakistan

Professional Affiliations

* Member of Punjab Mathematical Society, Pakistan

Administrative Responsibilities and Professional Services

* Principal, University of Education, Lahore, Multan Campus
* Member of Affiliation Committee
* Member of Academic Council, University of Education, Lahore
* Member of DTRC Review Committee
* Chairperson of Mathematics Department at University of Education, from February, 2018 to 22-03-18
* Chairman Purchase Committee of University of Education, Lahore
* Conference Secretary of 6th International Conference on Education: Science Beyond Class Room
* Referee of IJTP
* Referee of MPLA

Awards

* Research Productivity award awarded by Pakistan Council of Science and Technology for the year 2013, 2014 and 2015
* Awarded Indigenous PhD scholarship by Higher Education Commission of Pakistan

Teaching Experience

Taught the following courses

1. Differential equations (M. Sc. Math) at University of Education, Lahore
2. Measure Theory (M. Sc. Math) at University of Education, Lahore
3. Introduction to Special Theory of Relativity (M. Sc. Math) at University of Education, Lahore
4. Classical Mechanics (M. Sc. Math) at University of Education, Lahore
5. Graph Theory (M. Sc. Math) at University of Education, Lahore
6. Vector and Tensor Analysis (BS Hons. Math) at University of Education, Lahore
7. Discrete Structure (M. Sc. Computer Science) at University of Education, Lahore
8. Calculus (BS Hons Computer Science) at University of Education, Lahore
9. Riemannian geometry (M.Phil. Math) at University of Education, Lahore
10. Method of Mathematical Physics (BS Hons. Math) at University of Education, Lahore
11. Number Theory (M. Sc. Math) at University of Education, Lahore
12. Ordinary Differential Equations (M. Sc. Math) at University of Education, Lahore
13. General Relativity (M. Phil Math) at University of Education, Lahore

COMPUTER EXPERIENCE

(a) MS Office;

(b) Computer Language FORTRAN;

(c) Document Preparation and Word Processing:

(i) LaTex; (ii) Mathematica (iii) Maple

Conferences and Seminars Attended

1. 30th International Nathiagali Summer College on Physics and Contemporary Needs held at Nathiagali, June 27-July 2, 2005
2. Second World Conference on 21st Century Mathematics 2005 held at School of Mathematical Sciences, Lahore, March, 4-6, 2005.
3. International Symposium on Relativity held at University of the Punjab Lahore, April 6, 2006.
4. Conference on General Relativity and Gravitation at University of the Punjab, Lahore, Pakistan, February 11-13, 2010
5. 12th National Symposium on Frontiers in Physics, 02-04 February, 2011 organized by Government College University, Lahore, Pakistan.
6. 5th World Conference on 21st Century Mathematics, 09-13, February, 2011 organized by Abdus Salam School of Mathematical Sciences, Government College University Lahore, Pakistan.
7. Conference on Mathematical Sciences, 17-19 November, 2011 organized by Center for advanced Mathematics and Physics at national University of Science and Technology, Islamabad, Pakistan.
8. One-Day Conference on Gravitation in Honor of Professor Dr. Asghar Qadir, 17 December, 2011 organized by Department of Mathematics, University of the Punjab, Lahore, Pakistan.
9. IV Italian-Pakistani Workshop on Relativistic Astrophysics, CAMP-NUST, Islamabad-Pakistan, February 15-17, 2013
10. Lecture Series on Cosmology at University of the Punjab, Lahore Pakistan, November 08-09, 2013
11. Symmetries, Differential Equations and Applications-II, SNS-NUST, Islamabad, January 27-30, 2014.
12. International Conference on Relativistic Astrophysics at University of the Punjab February 10-14, 2015
13. International Conference on Recent Advances in Applied Mathematics, Department of Mathematics, Comsats Institute of Information Technology, Lahore, December 17-18, 2015

Delivered the following seminars

1. Energy-Momentum Distribution: Some Examples (Maths. Department, Punjab University Lahore, 2006);
2. Effects of Electromagnetic Field on the Expansion-free Gravitational Collapse (Maths. Department, Punjab University Lahore, 2011);
3. Study of Thin-shell Wormholes from Regular Black Holes (Maths. Department, Punjab University Lahore, 2012);
4. Stability of Thin-shell Wormholes in Non-linear Electrodynamics (4th Italian-
5. Pakistani Workshop, CAMP-NUST, Islamabad-Pakistan, February 15, 2013);
6. Spherical Thin-shell Wormholes (Maths. Department, Punjab University Lahore, 2013);
7. Stability of Thin-shell Wormholes from Charged Black Strings (SDEA-II, SNS-NUST Islamabad, January 27, 2014);
8. Effects of Electromagnetic Field on Cylindrical Collapse (International Conference on Relativistic Astrophysics at University of the Punjab February 10-14, 2015)
9. Cracking of Some Compact Objects (Maths. Department, Comsats Institute of Information Technology, Lahore, December 17, 2015)

List of Publications

1. Energy–Momentum Distribution: Some Examples

M. Sharif and **M. Azam**, Int. J. Mod. Phys. A 22(2007)1935, <http://www.worldscientific.com/doi/abs/10.1142/S0217751X0703515X>

1. Effects of Electromagnetic Field on the Dynamical Instability of Expansion-free Gravitational Collapse.

M. Sharif and **M. Azam**, Gen. Relativ. Gravit. 44(2012)1181, [http://link.springer.com/article/10.1007%2Fs10714-012-1333-8](http://link.springer.com/article/10.1007/s10714-012-1333-8)

1. Effects of Electromagnetic Field on the Dynamical Instability of Cylindrical Gravitational Collapse.

M. Sharif and **M. Azam**, JCAP 02(2012)043, <http://iopscience.iop.org/article/10.1088/1475-7516/2012/02/043/meta>

1. Stability of Thin-Shell Wormholes in Non-Linear Electrodynamics.

M. Sharif and **M. Azam**, J. Phys. Soc. Jpn 81(2012)124006, <http://journals.jps.jp/doi/abs/10.1143/JPSJ.81.124006>

1. Stability of Anisotropic Cylinder with Zero Expansion.

M. Sharif and **M. Azam**, Mon. Not. Astron. Soc. 430(2013)3048, <http://mnras.oxfordjournals.org/content/early/2013/02/12/mnras.stt112.full.pdf>

1. The Stability of a Shearing Viscous Star with Electromagnetic Field.

M. Sharif and **M. Azam**, Chinese. Phys. B 22(2013)050401, <http://cpb.iphy.ac.cn/EN/abstract/abstract53394.shtml>

1. Spherical Thin-Shell Wormholes and Modified Chaplygin Gas.

M. Sharif and **M. Azam**, JCAP 05(2013)025, <http://iopscience.iop.org/article/10.1088/1475-7516/2013/05/025/meta>

1. Stability Analysis of Thin-Shell Wormholes from Charged Black String.

M. Sharif and **M. Azam**, JCAP 04(2013)023, <http://iopscience.iop.org/article/10.1088/1475-7516/2013/04/023>

1. Dynamical Instability of Collapsing Radiating Fluid.

M. Sharif and **M. Azam,** J. Exp. Theor. Phys. 116(2013)911, [http://link.springer.com/article/10.1134%2FS1063776113060125](http://link.springer.com/article/10.1134/S1063776113060125)

1. Mechanical Instability of Cylindrical Thin-Shell Wormholes.

M. Sharif and **M. Azam**, Eur. Phys. J. C 73(2013)02407, [http://link.springer.com/article/10.1140%2Fepjc%2Fs10052-013-2407-9](http://link.springer.com/article/10.1140/epjc/s10052-013-2407-9)

1. Reissner-Nordstrom Thin-Shell Wormhole with Generalized Cosmic Chaplygin Gas.

M. Sharif and **M. Azam**, Eur. Phys. J. C 73(2013), [http://link.springer.com/article/10.1140%2Fepjc%2Fs10052-013-2554-z](http://link.springer.com/article/10.1140/epjc/s10052-013-2554-z)

1. Role of Anisotropy in the Expansion-free Plan Gravitational Collapse.

M. Sharif and **M. Azam**, Gen. Relativ. Gravit. 46(2014)1647, [http://link.springer.com/article/10.1007%2Fs10714-013-1647-1](http://link.springer.com/article/10.1007/s10714-013-1647-1)

1. Thin-shell wormholes in Born-Infeld Electrodynamics with modified Chaplygin gas

M. Sharif and **M. Azam**, Phys. Lett. A 378(2014) 2737, <http://www.sciencedirect.com/science/article/pii/S0375960114007671>

1. Cracking of some compact objects with linear regime,

**M. Azam**, S. A. Mardan and M. A. Rehman, Astrophys. Space Sci., Vol 358: 6, 2015 <http://link.springer.com/article/10.1007/s10509-015-2405-5>

1. Cracking of compact objects with electromagnetic field,

**M. Azam**, S. A. Mardan and M. A. Rehman, Astrophys. Space Sci., 359: 14, 2015 <http://link.springer.com/article/10.1007/s10509-015-2470-9>

1. Fate of Electromagnetic Field on the Cracking of PSR J1614-2230 in Quadratic Regime, **M. Azam**, S. A. Mardan and M. A. Rehman, Advances in High Energy Physics, Vol 2015: 865086, 2015, <http://www.hindawi.com/journals/ahep/2015/865086/>
2. Born-Infeld Thin-shell Wormholes Supported with Generalized Cosmic Chaplygin Gas, **M. Azam** Astrophys. Space Sci, 361(2016)96, <http://link.springer.com/article/10.1007/s10509-016-2685-4/fulltext.html>
3. Stability of Quark Star Models,

**M. Azam**, S. A. Mardan and M. A. Rehman, Commun. Theor. Phys. 65 (2016) 575–584, <http://iopscience.iop.org/article/10.1088/0253-6102/65/5/575>

1. Study of Polytropes with Generalized polytropic Equation of State,

**M. Azam**, S. A. Mardan, I. Noureen and M. A. Rehman**,** Eur. Phys. J. C 76(2016)315, <http://link.springer.com/article/10.1140/epjc/s10052-016-4154-1>

1. The stability of Some Viable Stars and Electromagnetic Field,

**M. Azam**, S. A. Mardan and M. A. Rehman **,** Chinese Phys. Letts. **33** (7) (2016) 070401. <http://cpl.iphy.ac.cn/fileup/PDF/2016-33-07-070401.pdf>

1. Charged Cylindrical Polytropes with Generalized Polytropic Equation of State,

**M. Azam**, S. A. Mardan, I. Noureen and M. A. Rehman Eur. Phys. J. C 76(2016)510. <https://link.springer.com/article/10.1140/epjc/s10052-016-4358-4>

1. On Cracking of Charged Anisotropic Polytropes,

**M. Azam** and S. A. Mardan, JCAP 01(2017)040 <http://iopscience.iop.org/article/10.1088/1475-7516/2017/01/040>

1. Cracking of Charged Polytropes with Generalized Polytropic Equation of State,

**M. Azam**, and S. A. Mardan, Eur. Phys. J. C 77(2017)113. <https://link.springer.com/article/10.1140/epjc/s10052-017-4671-6>

1. Cracking of anisotropic cylindrical polytropes,

S. A. Mardan and **M. Azam**,, Eur. Phys. J. C 77(2017)385.

[https://link.springer.com/content/pdf/10.1140%2Fepjc%2Fs10052-017-4960-0.pdf](https://link.springer.com/content/pdf/10.1140/epjc/s10052-017-4960-0.pdf)

1. Accretion onto the Magnetically Charged Regular Black Hole,

**M. Azam** and Aqra Aslam, Chinese Physics Letters,34( 2017) 070401, <http://cpl.iphy.ac.cn/10.1088/0256-307X/34/7/070401#1>

1. Geodesic Structure of Magnetically Charged Regular Black Hole, **M. Azam** et al. IJGMMP, 14(2017)1750120, <https://doi.org/10.1142/S0219887817501201>

#  Geodesic Motion Around Regular Magnetic Black Hole in Non-minimal Einstein–Yang-Mills Theoy , M. Azam et al. Canadian Journal of Physics, 95 (2017) 1062, <https://doi.org/10.1139/cjp-2016-0900>

1. Anisotropic Charged Physical Models with Generalized Polytropic Equation of State, A. Nasim and **M. Azam,** Eur. Phys. J. C 78 (2018)34 [https://link.springer.com/content/pdf/10.1140%2Fepjc%2Fs10052-018-5531-8.pdf](https://link.springer.com/content/pdf/10.1140/epjc/s10052-018-5531-8.pdf)
2. New classes of anisotropic models with generalized polytropic equation of state, S. A. Mardan, I. Noureen, **M. Azam,** M. A. Rehman and M. Hussan, Eur. Phys. J. C. 78(2018) 516 <https://link.springer.com/article/10.1140/epjc/s10052-018-5992-9>
3. Anisotropic charged generalized polytropic models, A, Nasim and **M. Azam**, Astrophys. Space Sci. 363(2018) 132 <https://link.springer.com/article/10.1007/s10509-018-3356-4>
4. f(T) Corrected Instability of Cylindrical Collapsing Object with Harrison-Wheeler Equation of State, A. Jawad and **M. Azam**, Adv. In High Energy Phys. 2018(2018)7265785<https://www.hindawi.com/journals/ahep/2018/7265785/>
5. Stability of Generalized Polytropic Models, I. Nazir and M. Azam, International Journal of Geometric methods in Modern Physics, Vol. 16, No. 04, 1950056 (2019), <https://doi.org/10.1142/S0219887819500567>
6. Models of charged compact objects with generalized polytropic equation of state, M. Azam, et al. European Physical Journal C, Vol. 79, No. 302, (2019), <https://link.springer.com/article/10.1140/epjc/s10052-019-6806-4>

SUPERVISION OF M. PHIL/PH.D STUDENTS

**M.Phil Students Completed**

1. Syeda Sumera (2014-2016), “**Geodesic Structure of Regular Magnetic Black Holes**”
2. Faiqa Beenish (2013-2015) “ **Dynamical Effects On the Collapse of Cylindrical Symmetric Star in Generalized Teleparallel Gravit**”
3. Aqra Aslam (2015-2017), **Accretion Onto Magnetically Charged Regular Black Hole”**
4. Tyba Kanwal (2015-2017),” **Cracking of Compact Objects Via Local Density Perturbation”**
5. Ayisha Nasim (2015-2017),” **Modelling of Some Astrophysical Compact Objects”**
6. Zubaria Irfan (2015-2017) , “ **Born-Infeld Thin-shell wormholes with Generalized Polytropic Equation of State**
7. Iqra Nazir (2016-2018),” **Stability of Generalized Polytropic Models**”
8. Rabia Naeem (2016-2018),” **Charged Anisotropic Models in Finch-Skea Spacetime**”

PhD Student

1. Mr. Syed Ali Mardan Azmi (2017)**, The Dynamical Study of Compact Objects in General Relativity,**

References

1. Prof. Dr. Muhammad Sharif, Department of Mathematics, University of the Punjab, Lahore, Pakistan, msharif.math@pu.edu.pk
2. Dr. Mehmood-ul-Hassan (Associate Professor), Department of Physics, University of the Punjab, Lahore, Pakistan, mhassan.physics@pu.edu.pk
3. Prof. Dr. Shaid Saeed Siddiqi , Department of Mathematics, University of the Punjab, Lahore, Pakistan, Shahid\_Siddiqi.math@pu.edu.pk, shahidsiddiqiprof@yahoo.co.uk