I. Personal Information:

Name:	• Dr.DebjitDutta
Present Institute:	• Department of Basic & Applied Science, National Institute of Technology(NIT) Arunachal Pradesh, Jote AP-791123, India
Current Position:	• Assistant Professor Grade- I
Contact:	• Email: debjit@nitap.ac.in& debjitdutta.math@gmail.com
	• Phone: +91-9474021583;Whatsapp:+91-9862521147
	• Address: Kabsa, Narayangarh, WestMidnapore, West Bengal, India. PIN - 721437

II. Education:

11/2008 - 10/2013   • Ph.D.Indian Statistical Institute, Kolkata, India,
Thesis Title: Supersymmetric approach to some problems in quantum mechanics and related topics.
Supervisor: Prof. Pinaki Roy, Physics & Applied Mathematics Unit, I.S.I KOLKATA

III. Functions:

2014 - 2014   • Institute Visiting Scientist, Physics & Applied Mathematics Unit, Indian Statistical Institute, Kolkata

2010 - 2014   • Institute Senior Research Fellow, Physics & Applied Mathematics Unit, Indian Statistical Institute, Kolkata

2008– 2010   • Institute Junior Research Fellow, Physics & Applied Mathematics Unit, Indian Statistical Institute, Kolkata

2014-2016 :   Assistant Professor, National Institute of Technology ,Agartala, Tripura.

IV. Awards & Accolades:

June - 2014   • Dr. D. S. Kothari Postdoctoral Research Fellowship, DSKF, India

March - 2014   • Postdoctoral Research Fellowship, PDF, NBHM, India

August - 2009   • Fast Track Young Scientist Award, fromDepartment of Science & Technology -DST , India

July - 2008   • Indian Statistical Institute Kolkata, Full Time Research Fellowship, , India

V-I. Research Publication: • Papers: International Peer Reviewed Journals - 23
• Book or Book Chapters: International/National Publisher - 07

V-II. Peer Reviewed Papers:

• D. Dutta, O. Panella and P.Roy; Pseudo Hermitian Generalized Dirac Oscillators; Annals of Physics, 2013 - 331 - (120 - 126)

- D. Dutta and P. Roy, Generalized Factorization and Isospectral Potentials, Physical Review A, 2011 - 83 - (054102)

- D. Dutta and P. Roy, Conditionally exactly solvable potentials and exceptional orthogonal polynomials, Journal of Mathematical Physics(JMP), 2010 - 51 - (042101)

- D. Dutta and P.Roy, Bound states in Continuum in effective mass model, Euro Physics Letters (EPL), 2010 - 89 - (20007)

- D. Dutta and P.Roy, Information Entropy of conditionally exactly solvable potentials, Journal of Mathematical Physics (JMP), 2011 - 52 - (032104)

- D. Dutta and P.Roy, Darboux transformation, exceptional orthogonal polynomials and information theoretic measures of uncertainty, Contemporary Mathematics (AMS), 2012 - 563 - (xxx)

- D. Dutta, On the completeness of exceptional orthogonal polynomials in quantum systems. Int. J Appl.Math, 2013 - 26 - (601 - 609)

- D. Dutta, A. Sinha and P. Roy, Study of Classical mechanical system with complex Potentials, Physics Letters A, 2011 - 375 - (452-457)

- D. Dutta, (3+1) Dimensional nonplanarKdVequation for quantum electron-positron-ion Plasma, Astrophysics & space Science, 2015 - 42 - (1)

- D. Dutta, A spectral model for the turbulent kinetic energy in a stratified shear flow ,Int. J.Engg. &Innovation Technology (IJEIT), 2014 - 3 - (xxx)

- D. Dutta, P.Singha, B.Sahu- Interlaced linear-nonlinear wave propagation in a warm Multi-component, plasmas(Physics of Plasmas, 2014 - 21 - (122308)

- D. Dutta, Arbitrary amplitude solitary waves in an unmagnetizedquantumpair-ion plasma(Indian JournalofPhysics, DOI10.1007/s12648-015-0792-7,2015Springer)

- D. DuttaandB. Sahu-Nonlinear structures in an ion-beam plasmas including dust impurities withnonthermalnonextensiveelectronsand negative ions, Communication in theoretical Physics(CTP), 2017 - 68 - (117 - 124)

- D. Dutta, BarnaliPal and SwarupPoria- Complex dynamics of a particle in oscillating potential field Pramana– J.Phys. 2017 - 89, 32,DOI 10.1007/s12043-017-1428-6

- D. Dutta and B. Sahu- Nonlinear features of electrostatic waves in a plasma with nonthermal-Tsallisdistributed electrons (Physics of Plasmas (POP) 2016 - 23 - (062313)

- D. Dutta, Quasi particle in Grapheneinpresence of electromagnetic field with position dependent effectivemass (Communicated in Journal ofPhysicsA, SCI)

- D. Dutta et. al. MADM using m-generalized q-NEUTROSOPHIC SETS in Neutrosophic Sets and systems (NSS), SCOPUS, ESCI(2020)

- A. Saha, P. Mazumder, D.Dutta, B.K. Debnath - Multi-attribute decision making using q-rung ortho pair fuzzy weighted fairly aggretation operators- (Journal of Ambient Intelligence and Humanized Computing(Q1category, SCI) DOI 10.1007/s12652-020-02551-5)(2020)

- A.Saha, D.Dutta, S.Kar - Some new hybrid hesitant fuzzy weightedaggregation operators based on Archimedean &Dombi operators for multi-attribute decision making-(Neural Computing and Applications, (NCAA) Q1 category, SCI

- PeideLiu ,AbhijitSaha, DebjitDutta, SamarjitKar : Multi-Attribute Decision-Making Using Hesitant Fuzzy Dombi– Archimedean Weighted Aggregation Operators. International Journal of Computational Intelligence Systems, 2021 - 14 - (386 - 411)

- Harish Garg, J. Baidya, A. Saha, A. Mishra, P.Rani. D. Dutta- Selection of third party reverses logistics providers: an approach of BCF-CRITIC-MULTIMOORA using Archimedean power aggregation operators. Complex & Intelligent Systems **Vol-7**, pages2503–2530 (2021). (IF: 6.8).

- Probabilistic Linguistic q -rung orthopair fuzzy Generalized Dombi and Bonferroni mean operators for group decision-making with unknown weights of experts by AbhijitSaha, Harish Garg and D. Dutta in International Journal of Intelligent systems, vol-36, 7770-7804 (2021)(IF: 8.709)

- Nonlinear behaviour of ion acoustic shock waves in a two-electron temperature nonthermal complex plasma- D. Kolay and D. Dutta, journal: Zeitschrift für Naturforschung A(SCI), vol. 77, no. 11, 2022, pp. 1045-1062. https://doi.org/10.1515/zna-2022-0038

- Modelling of nonlinear ion-acoustic wave structures due to Martian ionospheric loss-D.Kolay,**D. Dutta,** A.Saha.**Astrophysics and Space Science** (2023) 368:4 https://doi.org/10.1007/s10509-022-04161-3. (**SCI,**Impact factor: **1.89**)

- Sustainable supplier selection using HF-DEA-FOCUM-MABAC technique: a case study in the Auto-making industry- Arunodaya Raj Mishra, AbhijitSaha, **DebjitDutta**, Pratibha Rani , Journal: **SoftComputing** (2022) 26:8821–8840, https://doi.org/10.1007/s00500-022-07192-8(SCI, **Impact factor: 4.3**).

- Dynamics of Ion-Acoustic Waves in Multi-Species Quantum Plasmas with Arbitrary Degeneracy. DebadityaKolay ,**D. Dutta,** AbhijitSaha, Indian Journal of Physics (INJP)(Accepted March 2023) (**SCI**)**Impact Factor: 2.01.**

- Coexistence of positive and negative polarity solitons, double layers and supersolitons in electron-positron multi-ion plasmas–D.Dutta, D. Kolay , B. Sahu. *Waves in Random & Complex Media* January 2023 .**(SCI).(IF: 4.853)**

- Nonlinear coherent structures of nucleus-acoustic wave excitations in multi-nuclei quantum plasmas with ultra-relativistically degenerate electrons and positrons- **D. Kolay&D.Dutta**.*Physics of Plasmas*(July 2023).

- Bipolar fuzzy Dombi-Archimedean operators based consensus approach for adoption of smart manufacturing technologies-. A. Roy, A. Saha, D. Dutta, H. Garg- Soft Computing (May, 2023).(Accepted)

- **D. Duttaet. al.** "A BCF–CRITIC–WASPAS method for green supplier selection with cross-entropy and Archimedean aggregation operators", Journal of Ambient Intelligence and Humanized Computing, vol. 14, pp. 11909-11933, 2022.[SCI/SCIE, Q2]

Research Guidance: 4, out of which one awarded Ph.D and 3 ongoing.

V-III. Book or Book Chapters:

- GATE Engineering Mathematics, Khanna Publisher (ISBN: 978-93-873949-7-1)(2020)

- An introduction to basic Number theory, Prentice Hall of India-PHI (Published-2020)

- Diploma Engineering Mathematics, Prentice Hall of India-PHI (accepted proposal 2020)

- New exceptional orthogonal polynomials and polynomial algebras associated to the quantum system, Springer proceedings of AMMCS-2014

- Bulbul Disaster assessment using single valued spherical hesitant neutrosophicdombi weighted aggregation operators, Neutrosophic Operational Research 2021, pp 221–243**DOI: 10.1007/978-3-030-57197-9_12**

VI-I. Patent Published:

- Title: "A POWER HACKSAW MACHINE FOR SIMULTANEOUS TOP AND BOTTOM CUTTING WORKPIECES INCLUDING METAL AND ALIKE" India Govt, patent website. File no: 953/KOL/2015. Date: 03/09/15. Publication No. 41/2015**(Granted)**

- Title" A PROCESS FOR ISOLATION OF FLAVONOID COMPOUND / "RUTIN" FROM PLANT SPILANTHESPANICULATA" Application no- 201731033794, dated 23.09.17. Publication Date: 10/11/2017. Patent Journal no: 45/2017**(Granted)**

- Title: "A CUTTING TOOL BASED MACHINING SYSTEM FOR AUTOMATED SUBMERGE PRESSURIZED COOLANTMACHINING"hasbeenfiledon05.07.2018. Ref. no - 3306/ASA/PP-2450/AS.Applicationno.201821025194.(Acts as inventor). Publication date: 20.07.2018, The patent office Journal no. 29/2018.(Acts as inventor)

- Title ''A COST EFECTIVE SYSTEM FOR DRIVER DROWSINESS DETECTION''Journal No. 08/2020(Patent application reference No. 202041005075)dated :21/02/2020

- Title " DEVELOPMENT OF A SOLAR POWERED ECONOMIC AND ENVIRONMENTAL FRIENDLY E-BANNER: AN EXCLUSIVE SUSTAINABLE GREEN APPROACH, published on 30/10/2020, Application No: 202041043065 .Publication Date: 44/2020

- Title " A PROCESS FOR ISOLATION ANDYIELD INCREASE OF FLAVONOID COMPOUND / QUERCETIN FROM PLANT HOUTTUYNIA CORDATA THUNB BY UV-B EXPOSURE" Application no. 202131017804, Patent Filed on 16.04.2021**(Granted)**

VI-II. Patent Granted:

- Australian Patent : Title " A PROCESS FOR ISOLATION ANDYIELD INCREASE OF FLAVONOID COMPOUND / QUERCETIN FROM PLANT HOUTTUYNIA CORDATA THUNB BY UV-B EXPOSURE" Application no. 202131017804 Grant certificate no. 2021103279 date: 14.07.2021, Inventors: PallabiHui, Hui Tag, DebjitDutta, Sanjib Kumar

- Indian Patent: Title" A PROCESS FOR ISOLATION OF FLAVONOID COMPOUND / "RUTIN" FROM PLANT SPILANTHESPANICULATA" Inventors: Dr.Hui Tag, Dr.PallabiHui, Dr.DebjitDutta, Application no- 201731033794, dated 23.09.17. Publication Date: 10/11/2017. Patent Journal no: 45/2017, Grant certificate No. 201731033794, Date: 16.07.2021

  - Title: "A POWER HACKSAW MACHINE FOR SIMULTANEOUS TOP AND BOTTOM CUTTING WORKPIECES INCLUDING METAL AND ALIKE" India Govt, patent website. File no: 953/KOL/2015. Date: 03/09/15. Publication No. 41/2015**(Granted)**

VII. Research Interests:

- Supersymmetric and PT symmetric Quantum Mechanics

- Classical analogue of some quantum mechanical problems, MCDM, Fuzzy Aggregation Operators.

- Information Entropy

- Plasma Physics and study of its nonlinear behaviour

- Quantum system with position and velocity dependent effective mass

- Multi criteria decision making Problems (MCDM) and Aggregation Operators in Fuzzy systems

VIII-I.Conferences Organized:

- One week online short term course on 'Aspects of Modern OptimizationTechniques in Science & Engineering (AMOTSE)' during 17th-21st August'20.

- One day workshop on awareness programme on IPR policy on 30 th September, 2019 at NIT Arunachal Pradesh

- One day workshop on IPR policy on 10th January'19 at NIT Arunachal Pradesh

- 5 Days workshop on FDP during 18-22nd NOVEMBER, 2019 at NIT Arunachal Pradesh

- National conference on "Engineering problems and applications of Mathematics (EPAM)"11-12 June'16,NIT,Agartala

- Three days National workshop on "recent advancement in soft computing techniques" 29-31 Jan'16 – NIT Agartala

- Two days National workshop on "Techniques in Bio- Informatics"7-8 Aug'15 – NIT,Agartala, Tripura

VIII-II. Conferences Attended:

- AMMCS-2013 Internationalconference held on 26-30 th August, 2013 at WATERLOO, ONTARIO, CANADA

- International workshop on "Indo-US Bilateral" Nov'10 – ISI, Kolkata, India

- Summer school cum education model program on "Statistical Modelling for Data Analysis (SMDA)", 30 June – 13 July'08 – IIT, Kharagpur, India

- Workshop on " Astrophysics and Cosmology", Jan'10-University of Calcutta, Kolkata, INDIA

- National seminar on "recent advancement in techniques of applied mathematics: Computation and analysis",14-16 Mar'12

- International conference on "Modern perspectives of Cosmology and Gravitation", Feb'12 - ISI,Kolkata, INDIA

- National workshop on "Application of physics, mathematics to cognition and consciousness",JRD Tata Auditorium, NIAS, I.I.Sc Campus, Bangalore, 11-12 March, 2013

IX. Projects Ongoing& Submitted:

- DST-SERB projecttitled" AsystematicstudyofapplicationofSupersymmetricapproachinQuantumphysics" approved (15-March-2016 -start upresearchgrant). (Project file no- YSS/2014/000787, Ref no – 192014001086) (Principal investigator)(Completed)

- Project proposal entitled "Non-linear plasma wave dynamics in unbounded planar or bounded planar geometry" has been sanctioned by CSIR, New Delhi (as a PI).(Project No. 03(1471)/19/EMR-II)(Ongoing)

X. Work Experiences:

07/2016 - Present
- Assistant Professor, Department of Basic & Applied Sciences, National Institute of Technology, Arunachal Pradesh, India

07/2014 - 07/2016	• Assistant Professor, Department of Mathematics, National Institute of Technology, Agartala, Tripura, India

XI. Thesis Supervision:

• Supervised 2 Master of Science project students

• Currently supervising 3 Ph.D. research scholars.

XII. Topics Taught:

- Real Analysis
- Abstract Algebra
- Linear Algebra
- O.D.E & P.D.E

- Numerical Analysis
- Complex Analysis
- Functional Analysis
- Operations Research

- Optimization Techniques
- Fluid Dynamics
- Wavelet Theory
- Integral Transform & Equations

- Discrete Mathematics
- Engineering Mathematics
- Probability Theory
- Theory of Statistics

- Quantum & Classical Mechanics
- Measure Theory
- Statics
- Rigid Dynamics

- Tensor Calculus

XIII. Last Updated:

• 28th Oct 2023