Curriculum Vitae

Personal details

Name: Narasimha Raju Chebrolu

Date of Birth: 01-08-1987

Place of birth: Rajahmundry

Nationality: Indian

Phone: (+91) 8106193506
Skype ID: narasimharaju04
E-mail: narasimharaju.phy@gmail.com
Scopus Author ID: 56156353700
ORCiD: https://orcid.org/0000-0002-2698-9625
LinkedIn: linkedin.com/in/narasimha-raju-chebrolu-48428915

Postdoctoral Research Experience

2023 March- Still: Assistant Professor, Department of Physics, Central University of Karnataka, Karnataka 585367, India

2020 September – Feb 2023: DST Inspire Faculty, Department of Physics, Central University of Karnataka, Karnataka.

2020 March – 2020 August: Postdoctoral student, IISER Pune, Pune.
Research Supervisor: **Prof. Bijay Kumar Agarwalla.**

2019 August – 2020 February: Research Assistant, University of Hyderabad, Hyderabad.
Research Supervisor: **Prof. Ashok Chatterjee.**

2018 August – 2019 August: Postdoctoral student, University of Seoul, Seoul, South Korea.
Research Supervisor: **Prof. Jeil Jung.**

2017 June – 2018 August: Postdoctoral student, National Kaohsiung Normal University, Taiwan.
Research Supervisor: **Prof. Sung Po Chao.**

2016 November– 2017 March: Visiting Scientist, Physics Department, University of Konstanz, Konstanz, Germany.
Research Supervisor: **Prof. Wolfgang Belzig.**

Education details

2009 – 2016: PhD in Condensed matter theory, School of Physics, University of Hyderabad, India.
Research Supervisor: **Prof. Ashok Chatterjee.**

2007 – 2009: M. Sc. (Physics) with 7.25 CGPA from University of Hyderabad, Hyderabad, Telangana, India.

2004 – 2007: B. Sc. (Mathematics, Physics & Chemistry) with 74 % from SKVT Degree College, Rajahmundry, Andhra Pradesh, India.

2002 – 2004: 10+2 (Mathematics, Physics & Chemistry) with 78 % from Government Junior College, Rajahmundry, Andhra Pradesh, India.

2001 – 2002: Secondary education (10^{th}) with 82.5 % from Government School for Boys, Rajahmundry, Andhra Pradesh, India.

Research guidance experience

Master Thesis Students at Department of Physics, Central University of Karnataka.

1. Aparna E T (2019MPH03) – Title: "Graphene Circular Magnetic Quantum Dot"
2. Prakash Dwivedi (2019MPH20) –Title: "Circular Magnetic Quantum Dot in an external magnetic field"
3. Rajesh Kumar Panda (2019MPH23) – Title: "Electrostatic Charge Distribution of Few-Layer Graphene"
4. Rajaram Meher (20PGPHY09) – "Effects of 2nd order electron-phonon interaction on transport properties of SMT device"
5. Mukundadev Behera (20PGPHY06) – "Flat Bands in Twisted Double Bilayer Graphene with Spin-Orbit Interaction"

Teaching experience

Department of Physics, Central University of Karnataka.

S. NO	Course Title	UG or PG Level	Time Period (Date from & upto)	Number of periods/week
1.	Mechanics (IS-CT-1.2)	UG	Nov 2020 – Marc 2021	4
2.	Mechanics Lab	UG	Nov 2020 – Marc 2021	8
3.	Computational Physics (PPHTS 10101)	PG	Nov 2020 – Marc 2021	3
4.	Nanoscience & technology (PPHTDS x004)	PG	May 2021 – July 2021	3
5.	Mechanics (IS-CT-1.2)	UG	Nov 2021 – Marc 2022	4
6.	Mechanics Lab	UG	Nov 2021 – Marc 2022	8
7.	Nanoscience & technology (PPHTDS x004)	PG	June 2022 – Sept 2022	3

8.	Computational Physics (PPHTS 10101)	PG	Nov 2022 – April 2023	3
9.	Solid State Physics (PPHTDS 1004)	PG	Sep 2022 – Feb 2023	3
10.	Waves and optics (UPMTC40017)	UG	Marc 2023-June 2023	4
11.	Waves and optics Lab (UPMPC40019)	UG	Marc 2023-June 2023	8

List of research publications

1. Binding energy between the magnetic impurity electron and the conduction electrons in the Anderson-Holstein model
   Ch. Narasimha Raju, Ashok Chatterjee, Eur. Phys. J. B **86**, 493 (2013).

2. Effect of external magnetic field on the bound state between the localized and conduction electrons in Anderson-Holstein model.
   Ch. Narasimha Raju, Ashok Chatterjee, Physica B: Condensed Matter **448**, 207 (2014).

3. Effect of electron-phonon interaction and external magnetic field on the bound state in the Anderson-Holstein model: An improved variational calculation.
   Ch. Narasimha Raju, Ashok Chatterjee, Eur. Phys. J. B **88**, 108 (2015).

4. Ground state energy, binding energy and the impurity specific heat of Anderson-Holstein model.
   Ch. Narasimha Raju, Ashok Chatterjee, Can. J. Phys. **93**: 1024-1029 (2015).

5. Specific heat of a localized magnetic impurity in a non-magnetic host: A Spectral density method for the Anderson-Holstein model.
   Ch. Narasimha Raju, Ashok Chatterjee, Physica B: Condensed Matter **474**, 37 (2015).

6. Properties of a localized magnetic impurity in a superconducting host: The Anderson Holstein-BCS model.
   Ch. Narasimha Raju*, Ashok Chatterjee, J. Magn. Magn. Mater. **396**, 71 (2015).

7. Quantum dissipative effects on non-equilibrium transport through a single-molecular transistor: The Anderson-Holstein-Caldeira-Leggett model
   Ch. Narasimha Raju, Ashok Chatterjee, Scientific Reports **6**, 18511 (2016).

8. Magnetic field effect on the energy levels of an exciton in a GaAs quantum dot: Application for excitonic lasers.
   K. Luhluh Jahan, **Ch. Narasimha Raju**, Aalu Boda, I. V. Sankar, Ashok Chatterjee
   Scientific Reports **8**, 5073 (2018).

9. Flatbands in twisted double bilayer Graphene.
   Ch. Narasimha Raju, Bheema Lingam Chittari, Jeil Jung, Phys. Rev. B **99**, 235417 (2019).

10. Magneto-transport properties of a single molecular transistor in the presence of electron-electron and electron-phonon interactions and quantum dissipation.
    Manasa Kalla, **Ch. Narasimha Raju**, Ashok Chatterjee, Scientific Reports **9**, 16510 (2019).

11. Quantum transport in a single molecular transistor at finite temperature.
    Manasa Kalla, **Ch. Narasimha Raju**, Ashok Chatterjee, Scientific Reports **11**, 10458 (2021)

12. Transient dynamics of a single molecular transistor in the presence of local electron-phonon and electron-electron interactions and quantum dissipation.
    Manasa Kalla, **Ch. Narasimha Raju***, Ashok Chatterjee, Scientific Reports **12**, 9444 (2022)

13. Analytical model of the energy spectrum and Landau levels of a twisted double bilayer graphene.
    Ch. Narasimha Raju*, Bheema Lingam Chittari, Physica E: Low dimensional systems and Nanostructures **146**, 115526 (2023).

14. Effect of spin–orbit interaction on flatbands and Landau levels in twisted double bilayer graphene.
    Ch. Narasimha Raju*, Mukundadev Behera, Physica E: Low dimensional systems and Nanostructures **147**, 115602 (2023).

15. Negative differential resistance in single molecular transistor: The role of Coulomb interaction and non-linear electron-phonon coupling. **Ch. Narasimha Raju***, Rajaram Meher (Under Review)

Conference Oral Presentations

1. Spectral density method to Anderson-Holstein model.
   Ch. Narasimha Raju, Ashok Chatterjee, AIP Conference Proceedings **1665**, 090042 (2015).

2. Transient dynamics through a magnetic tunnel junction.
   Ch. Narasimha Raju, Sung Po Chao, APS March Meeting, **B15.002**, (2018).

3. Magneto-transport properties of a single molecular transistor: Anderson-Holstein-Caldeira- Leggett model.
   K. Manasa, **Ch. Narasimha Raju**, Ashok Chatterjee, AIP Conference Proceedings **2115**, 030450 (2019).

Department talks

1. Anderson-Holstein model: Some Applications
   November (2016), Physics Department, University of Konstanz, Konstanz, Germany.
2. Quantum transport in Molecular transistor: Anderson-Holstein-Caldeira-Leggett model
   August (2017), Physics Department, National Kaohsiung Normal University, Taiwan.

Conference Poster Presentations

1. Best research paper award – 2013, Frontiers in Physics (FIP), University of Hyderabad, Hyderabad.
2. Best research paper award – 2014, Frontiers in Physics (FIP), University of Hyderabad, Hyderabad.
3. India Singapore Joint Physics Symposium – 2015, IIT, Kanpur, India.
4. Magnetic Materials and Applications (MAGMA) – 2013, IIT, Guwahati, India.

References

1. **Prof. Ashok Chatterjee**
School of Physics
University of Hyderabad
Hyderabad 500046, India
E-mail: acsp.uohyd@gmail.com

2. Prof. Ch. Bheema Lingam
Department of Physical Sciences
IISER-Kolkata
Mohanpur 741246, West Bengal, India
E-mail: bheemalingam@iiserkol.ac.in

3. **Prof. S. Srinath**
School of Physics
University of Hyderabad
Hyderabad 500046, India
E-mail: srinaths10@gmail.com
Hyderabad 500046, India

4. **Prof. Sung Po Chao**
Department of Physics
National Kaohsiung Normal University,
Kaohsiung, Taiwan.
E-mail: spchao@gmail.com