
Dr. Ramanna P

Coordinator

Department of Physics

Raichur University, Raichur

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EDUCATION

Ph.D completed in Physics

Department of Physics, Karnatak University, Dharwad, Karnataka, India.

Thesis Title: *Spectroscopic Characterization of Some HOF Organic Linkers*
(Experimental and Theoretical Research).

Research Supervisor: *Prof. Jagdish R. Tonannavar*

M.Sc in Physics

2016

Gulbarga University, Kalaburagi, Karnataka, India.

Specialization: Materials Physics (**First Class**).

B.Sc (Physics, Mathematics and Computer Science as majors)

2014

Govt First Grade College, Shorapur, Yadgir.

Karnataka, India (**First Class with Distinction**).

CURRENT POSITION

Guest Faculty at Department of Physics, Raichur University, Raichur.

RESEARCH INTERESTS

My interest lies primarily in understanding the fundamental features of Hydrogen bonding in organic linker molecules. Accordingly, my work has diffused between various technical aspects, relating to the tools of study such as Mid IR, Raman, and ^1H NMR spectroscopic techniques and *ab initio* and Density Functional Theory (DFT) quantum theoretical modeling techniques and their applications in systems, such as Metal Organic Frameworks (MOFs), Covalent Organic Frameworks (COFs) and Hydrogen bonded Organic Frameworks (HOFs) etc. The organic linkers being studied are: 5-Bromoisophthalic acid, 2,5-Dihydroxyterephthalic acid, Biphenyl 3,3',5,5'-tetracarboxylic acid and 9,10-Antracenedicarboxylic acid etc. My current focus is on understanding the structural, vibrational and electronic properties of inter-\intra-molecular interactions such as Hydrogen bonding, Halogen-bonding, weak Van der Waals interactions, steric repulsive interactions to produce fascinating outcomes are may useful for design, synthesis and characterization of HOFs materials.

RESEARCH PROFILE DETAILS

ORCID ID: 0000-0003-1695-1508

Google Scholar: https://scholar.google.com/citations?user=_7CNAbwAAAAJ&hl=en

ResearchGate: <https://www.researchgate.net/profile/Ramanna-P-Kavali>

RESEARCH PUBLICATIONS

1. **Ramanna P, Jayashree Tonannavar, J. Tonannavar, Study of H-bonded cyclic dimer of organic linker 5-Bromoisophthalic acid by DFT and vibrational spectroscopy, *Journal of Molecular Structure*. 1241, (2021) 130613.**
2. **Ramanna P. Kavali, Jayashree Tonannavar, Jyoti Bhovi, J. Tonannavar, Study of O—H···O bonded cyclic dimer for 2,5-Dihydroxyterephthalic acid as aided by MD, DFT-calculations and IR, Raman, NMR spectroscopy, *Journal of Molecular Structure*. 1264, (2022) 133174.**

CONFERENCE PAPER TALKS/POSTERS

1. **Ramanna P Kavali, Jayashree Tonannavar and J Tonannavar, A Computed DFT Cyclic-dimer Model for H-bonding in 9,10-Antracenedicarboxylic Acid, International Conference on Frontier Areas of Science and Technology (ICFAST-2023), Shivaji University, Kolhapur, 8-9 Sept, 2023.** 2023
2. **Ramanna P Kavali, Jayashree Tonannavar and J Tonannavar, Study of O—H···O bonded Pentamer structure for Biphenyl 3,3',5,5'-tetracarboxylic acid, aided by Vibrational and NMR Spectroscopy combined with DFT calculations, 9th International conference on perspectives in vibrational spectroscopy (ICOPVS-2022), UGC-DAE Indore, Madhya Pradesh, 13-17 Dec, 2022.** 2022
3. **Ramanna P, Jayashree Tonannavar and J Tonannavar, DFT dimer model for H-bonding in 5-Bromoisophthalic acid, 8th International conference on perspectives in vibrational spectroscopy (ICOPVS-2020), JNCASR Bengaluru, 24-28 Feb, 2020.** 2020
4. **Ramanna P, Jayashree Tonannavar and J Tonannavar, Cyclic bonded dimer model for Organic linker- 2,5-Dihydroxy terephthalic acid, Virtual International Conference on Hierarchically Structured Materials (ICHSM-2021), SRM Chennai, 8-10 April, 2021.** 2021
5. **Ramanna P, Jayashree Tonannavar and J Tonannavar, 5-Bromoisophthalic acid structure and vibrational spectra, National conference on Science and Technology in Kannada, Dharwad, 23-24 Nov 2018. (Poster presentation).** 2018

Conference/Workshops/Seminars attended

1. **Faculty Development Programme for College and University Teachers** held during 4-16 Sept 2023, organized by Raichur University in collaboration with Karnataka Skill Development Corporation (KSDC), Bengaluru.
2. International Conference on **Crystal Growth and Spectroscopy** held during 29-31 Aug 2022 organized by Department of physics, St. Josephs College, Trichy Tamil Nadu.
3. National level Workshop on **Society, Research and Development** held at KUD on 19th Feb, 2018.
4. Two-Day National Seminar on **Frontier Methods & Techniques for Probing Molecules and Materials** organized by the Department of Physics KUD on 21-22nd Mar, 2018.
5. Three Days Workshop on **Analytical Techniques** held on 25-27 OCT 2018 at Karnatak University, Dharwad.
6. Two Days Outreach Program on **Recent developments in materials Research** held on 16-17 NOV 2018 at Higher Education Academy, Dharwad.
7. Refresher Course on **Elementary Quantum Mechanics and Spectroscopy** held on 14-29 JAN 2019 at SVNIT Surat, Gujarat.
8. Workshop on **Science leadership workshop** held on 22-28 Jun 2020 at central university of Punjab.
9. Workshop on **The full agenda of the DSC & ACS virtual workshop** held on 28 July 2020.
10. National seminar on **Applications of Vibrational Spectroscopy** held on 29 Aug 2020 at SRM institute Chennai.
11. National Webinar on **Raman Effect and its Applications** organized by the Department of Studies in Physics, Davangere University, Davangere on 25th June, 2020.
12. Webinar on **The Art and Science of writing scientific papers** held on 11 July 2020 at SCET Narsapuram, Andhra Pradesh.

EXPERIENCE IN EXPERIMENTAL TECHNIQUES

1. FT-IR spectrometry
2. FT-Raman spectrometry
3. ¹H NMR spectrometry

EXPERIENCE IN COMPUTATIONAL TECHNIQUES

1. DFT investigations of molecular properties: *Gaussian 16W*, *Gauss View 6W* and *Chemcraft* suits of software packages.
2. Normal coordinate analysis: *Molvib* and *VEDA* software packages.
3. Topological analysis of electron density: *Multiwfun* and *VMD (Visual Molecular Dynamics)* software package.

OUTSIDE VISIT IN CONNECTION WITH RESEARCH WORK

- Indian Institute of Technology (IIT)-Madras, Chennai.
- Indian Institute of Science (IISc), Bangalore.
- Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bangalore.
- National Institute of Technology (SVNIT)-Surat, Gujarat.

FELLOWSHIP HELD

- **Research Fellowship:** UGC-NFST Fellowship (2020-2022).

ACHIEVEMENTS/AWARDS

- Fellowship award for the year 2020-21 (UGC-NFST).

TEACHING EXPERIENCE

1. Resource Person for the one day work shop at Jagadguru Tontadarya College, Gadag, Karnataka on 1st Aug 2022.
2. I have mentoring and assisting project works and lab experiments for M. Sc students.
3. I worked as a Lab Assistant in the Department of Physics, Karnatak University, Dharwad from 2017 to 2022.

REFERENCES

Prof. Jagdish R. Tonannavar

Professor

Department of Physics

Karnatak University, Dharwad

Dharwad-580003 Karnataka

Contact No.: 9448375426

E-mail: jrtonannavar@kud.ac.in

Prof. V M Jali

Professor

Department of Physics

Gulbarga University, Kalaburagi

Kalaburagi-585106 Karnataka

Contact No.: 9845633050

E-mail: vmjali@rediffmail.com

LANGUAGES

Kannada (Mother Tongue), English and Hindi.

PERSONAL DETAILS

Date of Birth: 15th March 1991

Nationality: Indian

Permanent address: Ramanna P, At post: Shellagi, Tq: Shorapur, Dist: Yadgir, Karnataka, India - 585224.

Declaration

I, Ramanna P, hereby solemnly declare that the information furnished above is true and correct to the best of my knowledge and belief, and that no related information is concealed.

Place: Raichur

Date: 11/01/2023

Your's faithfully

Ramanna P