CURRICULUM VITAE

Name : Dr. G. Radha

Date of Birth : 16.04.1984

Present Address : 42-3/845- A1, Maruthupandiar Nagar,
Bharathinagar West,
Paramakudi-623707, Ramanathapuram (Dt),
TamilNadu, India.

Phone : +91 82206 18257 / +91 888 4103953

E-mail : radhag0671@gmail.com/murugan.mca78@gmail.com

Academic Qualifications:

Name of the Institution& Location	University/ Board	Degree/ Certificate	Year of Passing	Specialization	Percentage/Class
Bharathiar University, Coimbatore	Bharathiar University	Ph.D.,	May 2017	Thinfilms and Nanomaterials, Physics	Thesis- Highly Commended
Bharathiar University, Coimbatore	Bharathiar University	M.Phil.,	February 2009	Thinfilms and Nanomaterials, Physics	Thesis- Highly Commended
KonguNadu Arts and Science College, Coimbatore	Bharathiar University	M.Sc.,	April 2007	Physics	74.7% - First Class
Fatima College, Madurai	Madurai Kamaraj University	B.Sc.,	April 2005	Physics	74% -First Class
A.V. Higher Secondary. School, Paramakudi	State Board	H.S.C	March 2002	Maths, Physics, Chemistry &Biology	84.6%- First Class
A.V. Higher Secondary School, Paramakudi	State Board	S.S.L.C	March 1999	Tamil, English, Maths, Science, Social Science	88% - First Class

Academic Honours/ Awards Received

- ✓ Received **Summer training in physics fellowship by Indira Gandhi Centre for Atomic Research** (IGCAR), Kalpakkam, Tamilnadu, India (From May 2006 to July 2006).
- ✓ Received **Best Poster Award in the National conference on Advanced Functional Materials** (NCAFM -2014) organized by the Department of Physics, Bharathiar University, Coimbatore.

Details of Research Publications:

International Journals:

1. Synthesis and Experimental studies on supramolecular synthons of Aminoguanidinium carboxylates- A case study of π-hole bonded carbon bonding via theoretical approaches. **Govindarajan Radha**,[a] Baskaran Vijaya Pandiyan,[b] Palanisamy Deepa,[c] Subbiah Govindarajan,[d] Ponmalai Kolandaivel,*[e] and Devaraj Nataraj*[a, f], **Chemistry Select,** Wiley publications 2018,3,10032-10048.
2. Morphology Controlled Hexagonal Nanoflakes of Spinel $NiCo_2O_4$ using Ethylene Glycol. R. Amirthavalli, **G.Radha**, D.Nataraj, **International journal of science and Research** (IJSR), **2014**, 131-136. ISSN- 2319-7064.
3. Facile synthesis of Cobaltite (MCo_2O_4, where M= Ni and Zn) Nanostructures using single source solid solution precursors based on Aminoguanidinium mixed metal citrates. **G.Radha**, S. Govindarajan , D.Dionysis and D.Nataraj, **Chemistry of Materials**, ACS publications (to be communicated)

International / National Conferences:

1. Synthesis and characterization of metal cobaltites (MCo_2O_4) based on citrate precursors, **G.Radha**, D.Nataraj, D.Mangalaraj and S.Govindarajan. National Conference on Multifunctional Nanomaterials and Nanocomposites (NCMNN-2010), jointly organized by Department of Nanoscience and Technology & DRDO-BU Center for Life Sciences, Bharathiar University, Coimbatore ,India on February 4^{th} -5^{th} , 2010, (**Poster**)
2. Preparation and Characterization of spinel $NiCo_2O_4$ crystals by coordination chemical method. **G.Radha**, D.Nataraj and S.Govindarajan. International conference on advanced materials and its applications (ICAMA), Kalasalingam University, India on March 4^{th}-5^{th}, 2011 (**Poster**)
3. Piperazinium metal citrate –New precursor for Nanocrystalline Zinc Cobaltites. **G.Radha**, S.Govindarajan, D.Mangalaraj and D.Nataraj. Second National conference on Multifunctional Nanomaterials and Nanocomposites, organized by Department of Nanoscience and Technology, Bharathiar University, Coimbatore, India on March 24^{th}-25^{th}, 2011. (**Oral**)
4. Design of New piperazinium Bimetallic citrate as single source precursors for nanocrystalline $ZnCo_2O_4$. **G.Radha**, S.Govindarajan and D.Nataraj National conference on Advanced Functional Materials (NCAFM), organized by Department of Physics, Bharathiar University, Coimbatore, January 30^{th} – 31^{st} (2014) . (**Best Poster Award).**

5. Growth of nanostructures of NiO and $NiCo_2O_4$ using hybrid coordination polymer as precursor –Application to Photocatalytic degradation. S. Thilagavathi, **G. Radha**, and D.Nataraj. National conference on Advanced Functional Materials (NCAFM), organized by Department of Physics, Bharathiar University, Coimbatore, January 30^{th} – 31^{st} (2014). (**Poster**).

6. Morphology controlled Hexagonal nanoflakes of spinel $NiCo_2O_4$ using Ethylene Glycol R. Amirthavalli, **G. Radha** and D. Nataraj. UGC sponsored National seminar on Emerging Trends in plasma Technology and its Applications (**ETPTA**-2014), at Sri VasaviCollege, Erode-68316, India on 20-21 August 2014.

Conferences/Seminars/ Workshops Attended:

1. Attended **National seminar on Advanced Functional Materials** sponsored by UGC-SAP-DRS-II, Department of Physics Bharathiar University, Coimbatore, on 23^{rd} March 2017.
2. Attended a **National conference on Advanced Materials for Energy and Environmental Applications (AMEEA)**, Department of Physics, Bharathiar University, Coimbatore, during March 18^{th}-20^{th}, 2015.
3. Attended a **National seminar on Advanced Materials: Processing and Applications (NSAMPA-2012)** , Department of Physics, Bharathiar University, Coimbatore, on 29^{th} - 30^{th} March 2012.
4. Participated **National workshop on Advanced Instruments for characterization,** Department of Nanoscience and Technology, Bharathiar University, Coimbatore, on 27^{th} March 2012.
5. Attended a **DST-PURSE Sponsored workshop on Spectroscopy**, Department of Chemistry, Bharathiar University, Coimbatore, on 7^{th} March 2012.
6. Attended a **Awarness programme on Traffic and Road Safety**, Human Rights and Law Awarness Club, Bharathiar University, Coimbatore on 29^{th} February 2012.
7. Participated **National seminor on Radiation Technology in Healthcare and its safety,** Department of Medical Physics, Bharathiar University, on 16^{th} & 17^{th} , March 2011.
8. Attended a seminor on **Nuclear Energy for National Development (NEND)** organized by Bhabha Atomic Research Centre, Mumbai and Department of Physics, Bharathiar University, Coimbatore on 2^{nd} December 2009.
9. Participated workshop on **Advanced Techniques for Material Characterization** , Department of Nanoscience and Technology, Bharathiar University, Coimbatore on March 19^{th}- 21^{st} , 2009.
10. Participated in the **11^{th} Asian conference on Solid State Ionics** held at BU-DRDO centre for Life sciences, Bharathiar University, Coimbatore on 9^{th}- 13^{th} June 2008.
11. Participated Lecture Workshop on '**Frontier Topics in Physics'** Sponsored by NGM College, Pollachi, Indian Academy of Sciences, Indian National Science Academy and National Academy of Sciences, India on January 22^{nd} to 24^{th}, 2008.

Research Experience:

- ✓ Summer project work on **Characterization of GaAs semiconductor** was carried out in **Indira Gandhi Centre for Atomic Research** Kalpakam, TamilNadu. Duration: 26th May – 07th July, 2006.
- ✓ **Synthesis, structural and electrical properties of IndiumSelenide thinfilms** was carried out in KonguNadu Arts and Science College, Coimbatore. Duration: January – April, 2007.
- ✓ **Synthesis and characterization of Metal Cobaltites (MCo_2O_4, M=Ni and Zn) based on citrate precursors** was carried out in Department of Physics, Bharathiar University, Coimbatore. Duration: September 2007-September 2008.
- ✓ During my doctoral studies as a Co-guide M.Phil and B.Tech students projects has been carried out. Topics mainly based on metal oxide/mixed metal oxide nanostuctues.

Research Experience:

- ✓ Working as a Lecturer(PTA) in Government Arts College, Paramakudi – From Sep 2019 to Oct 2020.
- ✓ Working as a Guest Lecturer in Government Arts College, Paramakudi – From Nov 2020 to till Date.

Objective and Highlights of My Doctoral Thesis Work:

- ✓ I have successfully synthesized new supramolecular assemblies and metal complexes, for the first time, and which consisting of different Nitrogen rich organic ligand molecules and carboxylates (mono, di, tri and tetracarboxylates namely formate, maleate, citrate and naphthalene tetra carboxylic acids).Crystal structures of the as prepared molecular complexes were solved using single crystal X-ray diffraction and also obtained the CCDC (Cambridge Crystallographic Data Centre) numbers.
- ✓ Interestingly solid solution formation between the single metal as well as mixed metal molecular complexes was utilized for the preparation of Metal oxide /Mixed metal oxide nanostructures in a convenient way at low temperature. The important contribution in the present work is the formation temperature of Cobaltite (MCo_2O_4, where M=Zn or Ni) at 400°C.Due to the combined effect of exothermic property (arise from N-N, C-H and C-C bonds) of organic molecules and faster decarboxylation provided by the carboxylates play a vital role in deciding the formation temperature of oxide nanomaterials.
- ✓ Investigated the molecular vibrational, geometrical, compositional, structural, thermal, morphological and surface chemistry of molecular precursors and cobaltites were systematically characterized through Fourier Transform Infra-Red spectroscopy (FTIR), Ramen spectroscopy, UV-Visible absorption, powder X-Ray diffraction, TG-DTA, Field Emission Scanning Electron Microscopy techniques (FESEM), Transmission Electron Microscopy (TEM), High resolution transmission electron (HRTEM) and X-ray Photoelectron spectroscopy (XPS).

- ✓ I have also investigated the Non covalent interactions present in the supramolecular assemblies were analyzed using Ab-initio quantum chemical calculations. Interestingly we have observed the carbon bonding interactions in addition with the hydrogen bonding interaction s to stabilize the 3D supramolecular assembly.

Instrumental Exploser:

Able to operate the following characterization techniques individually

- ✓ X-ay diffraction
- ✓ Fourier Transform infrared spectroscopy
- ✓ UV-Visible absorption spectroscopy
- ✓ Photoluminescence
- ✓ Thermogavimetic and Differential thermal Analysis

Current Research Interests:

- ✓ Hydrogen storage materials
- ✓ Spinel/ pervoskite oxide nanostructures for Super capacitor/ Battery Application
- ✓ Metal organic materials for explosive sensor application
- ✓ Hybrid materials for solar cells

Personal Details:

Gender: Female

Fathers Name: S. Govindarajan

Mothers Name: M. Thamaraikannu

Marital status: Married

Nationality: Indian

Languages Known: English, Tamil

References:

1. **Dr. D. Nataraj**

   Associate Professor,

   Department of Physics,

   Bharathiar University,

   Coimbatore-641 046

Tamil Nadu, India
E-mail:de.natraj2011@gmail.com
Phone: +919994734020

2. **Dr. K. Srinivasan**
Professor and Head,
Department of Physics,
Bharathiar University,
Coimbatore- 641 046
TamilNadu, India
E-mail:nivas_5@yahoo.com
Phone: + 91 9443609873
3. **Dr. P. Kolandaivel,**
UGC-BSR Faculty Fellow,
Department of Physics,
Bharathiar University,
Coimbatore-641046
Tamil Nadu, India
Email:ponkvel@hotmail.com
Phone: +919442534390.
4. **Dr. S. Govindarajan,**
UGC Emeritus Faculty Fellow
Department of Chemistry
Bharathiar University,
Coimbatore- 641 046
Tamil Nadu, India
E mail: dragovind@yahoo.co.in
Phone: +91 94436036449.