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Department of Physics,  
Bishop Heber College,  
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## Qualification

Degree	Branch	Institution / University	Year of Passing
Doctorate in Philosophy	Physics	Bharathidasan University	2020
M.Phil	Physics	Bharathidasan University	2013
M.Sc	Physics	Bharathidasan University	2012
B.Sc	Physics	Bharathidasan University	2010

## Ph.D. Details

Title of Thesis	Area of Specialization	Year of Award
Assessment of Pure and Transition Metals (Mn, Cu & Cr) Doped Co <sub>3</sub> O <sub>4</sub> Thin Films for Electrochromic Device Applications	Materials Science	February 2020
Research Supervisor	Research Centre	
Dr. C. Ravi Dhas	PG & Research Department of Physics, Bishop Heber College, Trichy-620002	

## Work Experience

Name of Institution	Address of Institution	Designation	From	To
Bishop Heber College	Trichy-17	Assistant Professor	7/26/2018	Till date

### Teaching / Research Experience

**U.G. :** 41 month      **P.G. :** 41 months      **M.Phil.**      **Ph.D.**

### Research Guidance

**U.G. :** 3      **P.G. :** 3      **M.Phil. :**      **Ph.D. :**

## Table of Contents

1.	Conferences / workshops / Seminars Attended	25
2.	Research Papers Presented	14
3.	Publication in Journals	27
4.	Publication in Books	2
5.	Books Published / Edited	0
6.	Conferences / Workshops / Seminars Organised	0
7.	Research Projects	0
8.	Resource Person	0
9.	Consultancy	0
10.	Awards Recieved	3
11.	Patent	0
12.	Extension Activities Undertaken	0
13.	Professional Membership	0
14.	M.Phil. / Ph.D. Produced	0 / 0

1. International level Conference on **"International Conference on Basic Sciences"** sponsored by Department of Basic Sciences, Bishop Heber College, organized by Department of Basic Sciences, Bishop Heber College, at Tiruchirappalli during 19/11/2019 to 21/11/2019.
2. International level Conference on **"India-UK Second International Conference On Advanced Nanomaterials for energy, environmental and Health care applications"** sponsored by PG & Research Department of Physics, Bishop Heber College, organized by PG & Research Department of Physics, Bishop Heber College, at Tiruchirappalli during 04/02/2019 to 06/02/2020.
3. International level Conference on **"International conference on Advanced Nanomaterials for Energy, Environment and Healthcare applications (ANEH-2018)"** sponsored by Department of physics, KSR college of Arts and Science for women organized by Department of physics, KSR college of Arts and Science for women at Tiruchengode, Namakkal during 31/08/2018 to 01/09/2018.
4. International level Conference on **"International Conference on Sustainable Energy Technologies, (ISET - 2018)"** sponsored by Bharathidasan University organized by Bharathidasan University at Trichy during 27/06/2018 to 28/06/2018.
5. National level Conference on **"Recent Trends in Nanomaterials and Thin films Research (RTNMTR -2018)"** sponsored by Department of Physics, AVVM Sri Pushpam College, organized by Department of Physics, AVVM Sri Pushpam College, at Thanjavur during 09/02/2018 to 11/02/2018.
6. International level Conference on **"International Conference on Material Physics (ICOMP-2018)"** sponsored by Department of Physics, Bishop Heber College, organized by Department of Physics, Bishop Heber College, at Trichy during 29/01/2018 to 29/01/2018.
7. National level Seminar on **"One day International Seminar on Recent Challenges in Materials Science (RCM-17)"** sponsored by Sree Sevugan Annamalai College organized by Sree Sevugan Annamalai College at Devakottai during 15/07/2017 to 15/07/2017.
8. National level Workshop on **"National workshop on Theory and Practice of X-ray diffraction techniques"** sponsored by Research and Development Cell and Department of Physics Alagappa Chettiar College of Engineering and Technology organized by Research and Development Cell and Department of Physics Alagappa Chettiar College of Engineering and Technology at Karaikudi during 25/05/2017 to 27/05/2017.
9. National level Workshop on **"National Workshop and Hands on Training Program on "Thin Films Solar Cells""** sponsored by Centre for Nanoscience and Technology, Anna University organized by Centre for Nanoscience and Technology, Anna University at Chennai during 11/11/2016 to 12/11/2016.
10. National level Conference on **"Second National Conference on Nanophotonics (NCNP-2016) ,"** sponsored by School of Physics, Bharathidasan University organized by School of Physics, Bharathidasan University at Trichy during 18/03/2016 to 19/03/2016.
11. International level Conference on **"International conference on Recent Trends in Materials Science and Applications (ICRTMSA-2016),"** sponsored by Department of Physics, Jamal Mohammed College, organized by Department of Physics, Jamal Mohammed College, at Trichy during 29/02/2016 to 29/02/2016.
12. National level Workshop on **"15th Hands on Training on Photovoltaics and Micro and Nano Characterization Techniques""** sponsored by Centre for Nano Science and Engineering, IISC organized by Centre for Nano Science and Engineering, IISC at Bangalore during 19/11/2015 to 27/11/2015.
13. National level Workshop on **"National Workshop on Crystal Growth, Thin Films and Solar Cells (WCTS- 2015)"** sponsored by PG & Research Department of Physics, National College (Autonomous) organized by PG & Research Department of Physics, National College (Autonomous) at Trichy during 04/09/2015 to 04/09/2015.
14. National level Workshop on **"National Workshop on Crystal Growth, Thin Films and Solar Cells (WCTS- 2015)"** sponsored by PG & Research Department of Physics, National College (Autonomous) organized by PG & Research Department of Physics, National College (Autonomous) at Trichy during 04/09/2015 to 04/09/2015.

15. National level Workshop on **"National Workshop on Crystal Growth, Thin Films and Solar Cells (WCTS- 2015)"** sponsored by PG & Research Department of Physics, National College (Autonomous) organized by PG & Research Department of Physics, National College (Autonomous) at Trichy during 04/09/2015 to 04/09/2015.
16. National level Conference on **"Recent trends in Nano Materials and Thin Films Research"** sponsored by AVVM Sri Pushpam College organized by AVVM Sri Pushpam College at Thanjavur, Tamil Nadu during 03/03/2015 to 03/04/2015.
17. National level Workshop on **"Short Term Programme on "Nano structured Materials: Processing and Characterization""** sponsored by Department of Physics, National Institute of Technology organized by Department of Physics, National Institute of Technology at Trichy during 07/11/2014 to 08/11/2014.
18. National level Workshop on **"Short Term Programme on "Nano structured Materials: Processing and Characterization""** sponsored by Department of Physics, National Institute of Technology organized by Department of Physics, National Institute of Technology at Trichy during 07/11/2014 to 08/11/2014.
19. National level Conference on **"Recent Trends in Crystal Growth and Nanomaterials"** sponsored by National College, organized by National College, at Tiruchirappalli during 07/08/2014 to 09/08/2014.
20. National level Conference on **"National Conference on Nanophotonics, Bharathidasan"** sponsored by Bharathidasan University organized by Bharathidasan University at Tiruchirappalli during 06/03/2014 to 07/03/2014.
21. International level Conference on **"International Conference on Chemistry in Synergy with Materials and Biology,"** sponsored by Bishop Heber College organized by Bishop Heber College at Tiruchirappalli during 10/01/2014 to 11/01/2014.
22. State level Seminar on **"One Day State Level Inter Collegiate Seminar on Applications of Nano Materials,"** sponsored by Ananda College, organized by Ananda College, at Devakottai during 16/09/2013 to 16/09/2013.
23. International level Conference on **"International Conference on Thin Films & Applications,"** sponsored by SASTRA University organized by SASTRA University at Trichy during 11/09/2013 to 13/09/2013.
24. National level Seminar on **"2nd National Seminar on Characterization Techniques"** sponsored by Alagappa University, organized by Alagappa University, at Karaikudi during 21/03/2013 to 23/03/2013.
25. International level Workshop on **"INDO-US Workshop and International Conference on Nanotechnology and Ultrasound"** sponsored by Department of Physics, St. Joseph College organized by Department of Physics, St. Joseph College at Trichy during 12/01/2011 to 14/01/2011.



1. **"Role of Cobalt-doping on Zinc oxide Nanoparticles Synthesized by Wet Chemical route for Antibacterial Application"** in the International conference on *International Conference on Basic Sciences* sponsored by , organized by Department of Basic Sciences, Bishop Heber College at Tiruchirappalli during 19/11/2019 to 21/11/2019.
2. **"Influence of Copper Doping on Electrochromic Performance of Nebulizer Spray Deposited Co<sub>3</sub>O<sub>4</sub> Thin Films"** in the International conference on *International Conference on Advanced Nanomaterials for Energy, Environment and Healthcare applications (ANEH-2018)* sponsored by , organized by Department of Physics, KSR college of Arts and Science for women at Tiruchengode during 31/08/2019 to 01/09/2019.
3. **"Effect of Chromium Doping on Physical Properties of Nebulizer Spray deposited Cobalt oxide Thin Films"** in the International conference on *International Conference on Sustainable Energy Technologies, (ISET - 2018)* sponsored by , organized by School of Physics and School of chemistry Bharathidasan University at Trichy during 27/06/2018 to 28/06/2018.
4. **"Role of Copper (Cu) Doping on Physical Properties of Co<sub>3</sub>O<sub>4</sub> Thin Films by Nebulized Spray pyrolysis"** in the National conference on *Recent Trends in Nanomaterials and Thin films Research (RTNMTR -2018)* sponsored by , organized by PG & Research Department of Physics, AVVM Sri Pushpam College at Thanjavur during 09/02/2018 to 11/02/2018.
5. **"Influence of manganese (Mn) doping on structural optical and electrical properties of nebulized spray deposited cobalt oxide thin films"** in the International conference on *International Conference on Material Physics (ICOMP-2018)* sponsored by , organized by PG & Research Department of Physics, Bishop Heber College at Trichy during 29/01/2018 to 29/01/2018.
6. **"Preparation and Characterization of Co<sub>3</sub>O<sub>4</sub> films using different solution molarity for electrochromic applications"** in the International conference on *One day International Seminar on Recent Challenges in Materials Science (RCM-17)* sponsored by , organized by Sree Sevugan Annamalai College at Devakottai during 15/07/2017 to 01/01/1900.
7. **"Preparation and characterization of Cobalt oxide (Co<sub>3</sub>O<sub>4</sub>) thin films by nebulizer spray technique for glucose sensing application"** in the National conference on *Second National Conference on Nanophotonics (NCNP-2016)* sponsored by , organized by School of Physics, Bharathidasan University, at Trichy during 18/03/2016 to 19/03/2016.
8. **"Effect of Aluminium Doping on Ethanol Gas Sensing Property of Zinc Oxide Nanostructured Thin Film Prepared by Jet Nebulizer Spray Technique"** in the International conference on *International Conference on Recent Trends in Materials Science and Applications (ICRTMSA-2016)*, sponsored by , organized by PG & Research Department of Physics, Jamal Mohamed College at Trichy during 29/02/2016 to 29/02/2016.
9. **"Structural optical electrical and gas sensing properties of nanostructured zinc oxide and aluminium doped zinc oxide thin films by jet nebulizer spray technique"** in the National conference on *Recent trends in Nano Materials and Thin Films Research*. sponsored by , organized by PG & Research Department of Physics, AVVM Sri Pushpam College at Thanjavur during 03/03/2015 to 04/03/2015.
10. **"Influence on Surfactant Concentration over the Particle Size of Cobalt Oxide Nanoparticles and their Antimicrobial Activity"** in the National conference on *Recent Trends in Crystal Growth and Nano Materials* sponsored by , organized by PG & Research Department of Physics, National College at Trichy during 07/08/2014 to 09/08/2014.
11. **"Antimicrobial investigation of Cobalt oxide Nanoparticles prepared by Surfactant mediated Sol-Gel technique"** in the National conference on *National Conference on Nanophotonics*, sponsored by , organized by Bharathidasan University at Trichy during 06/03/2014 to 07/03/2014.
12. **"Antibacterial investigation of Co<sub>3</sub>O<sub>4</sub> nanoparcticles synthesized by surfactant assisted sol-gel method."** in the International conference on *International Conference on Chemistry in Synergy with Materials and Biology* sponsored by , organized by Department of chemistry and biotechnology, Bishop Heber College, at Trichy during 10/01/2014 to 11/01/2014.

13. **"Structural Characterization and Antimicrobial activity of Cobalt Oxide (Co<sub>3</sub>O<sub>4</sub>) Nanoparticles by Sol-Gel Technique."** in the National conference on *One Day State Level Inter Collegiate Seminar on Applications of Nano Materials* sponsored by , organized by Ananda College at Devakottai during 16/09/2013 to 16/09/2013.
14. **"Synthesis and characterization of cobalt oxide (Co<sub>3</sub>O<sub>4</sub>) nanoparticles by sol-gel technique for antimicrobial application"** in the International conference on *International Conference on Thin Films & Applications*, sponsored by , organized by SASTRA University at Trichy during 11/09/2013 to 13/09/2013.



1. **"Insights on the host precursor role play in the chemiresistive gas sensing properties of nebulizer spray-coated CuO films"** published in Physica B: Condensed Matter (PEER REVIEW) Vol. 659, Issue No. , June 2023 ISSN : 0921-4526.
2. **"Correlation of annealing temperature on physico-chemical properties and electrochromic performance of nebulizer spray-coated NiO films"** published in Inorganic and Nano-Metal Chemistry (PEER REVIEW) Vol. 53, Issue No. 2, February 2023 ISSN : 2470-1556.
3. **"Versatile effects of transition metal-doped copper oxide nanoparticles on the efficacy of photocatalytic and antimicrobial activity"** published in Journal of Materials Research (PEER REVIEW) Vol. 37, Issue No. 23, December 2022 ISSN : 0884-2914.
4. **"Nebulizer sprayed nickel-manganese (Ni-Mn) mixed metal oxide nanocomposite coatings for high-performance electrochromic device applications"** published in Journal of Solid State Electrochemistry (PEER REVIEW) Vol. 26, Issue No. 5, March 2022 ISSN : 1432-8488.
5. **"Insights on photocatalytic dye inactivation and antimicrobial activity of pH-dependent facile synthesised copper oxide nanoparticles"** published in Applied Physics A (PEER REVIEW) Vol. 127, Issue No. , November 2021 ISSN : ---.
6. **"Direct-grown nebulizer-sprayed nickel-copper mixed metal oxide nanocomposite films as bifunctional electrocatalyst for water splitting"** published in Ionics (PEER REVIEW) Vol. , Issue No. , October 2021 ISSN : ---.
7. **"Effect of pH on visible-light-driven photocatalytic degradation of facile synthesized bismuth vanadate nanoparticles"** published in Materials Research Express (PEER REVIEW) Vol. 7, Issue No. 1, January 2020 ISSN : 2053-1591.
8. **"Influence of precursor aging time period on physical and photocatalytic properties of nebulizer spray coated BiVO<sub>4</sub> thin films"** published in Solid State Sciences (PEER REVIEW) Vol. 92, Issue No. , April 2019 ISSN : 1293-2558.
9. **"Tailoring the physical properties and electrochromic performance of nebulizer spray coated Co<sub>3</sub>O<sub>4</sub> films through copper doping"** published in Solid State Ionics (PEER REVIEW) Vol. 334, Issue No. , January 2019 ISSN : 0167-2738.
10. **"Substrate Temperature induced (020) growth facets of nebulizer sprayed BiVO<sub>4</sub> thinfilms for effective photodegradation of Rhodamine B"** published in Crystal Research and Technology (PEER REVIEW) Vol. 54, Issue No. , January 2019 ISSN : ---.
11. **"Electrochromic performance of chromium-doped Co<sub>3</sub>O<sub>4</sub> nanocrystalline thin films prepared by nebulizer spray technique"** published in Journal of alloys and compounds (PEER REVIEW) Vol. 784, Issue No. , January 2019 ISSN : 0925-8388.

12. **"Solvent volume-driven CuInAlS<sub>2</sub> nanoflake counter electrode for effective electrocatalytic tri-iodide reduction in dye-sensitized solar cells"** published in Journal of Solid State Electrochemistry (PEER REVIEW) Vol. 22, Issue No. , March 2018 ISSN : 1432-8488.
13. **"Solvent volume dependent physical properties and electrocatalytic ability of nebulizer spray deposited CuInGaS<sub>2</sub> counter electrode for dye – sensitized solar cells"** published in Thin Solid Films (PEER REVIEW) Vol. 653, Issue No. , March 2018 ISSN : 0263-8231.
14. **"Role of fluorine doping on luminescence centres and enhanced photocatalytic performance of nebulizer sprayed TiO<sub>2</sub> films under visible light"** published in Journal of Luminescence (PEER REVIEW) Vol. 198, Issue No. , February 2018 ISSN : 0022-2313.
15. **"Role of fluorine doping on luminescence centres and enhanced photocatalytic performance of nebulizer sprayed TiO<sub>2</sub> films under visible light"** published in Journal of Luminescence (PEER REVIEW) Vol. 198, Issue No. , February 2018 ISSN : 0022-2313.
16. **"Analysis of optical dispersion parameters and electrochromic properties of manganese-doped Co<sub>3</sub>O<sub>4</sub> dendrite structured thin films"** published in Journal of Physics and Chemistry of Solids (PEER REVIEW) Vol. 122, Issue No. , February 2018 ISSN : 0022-3697.
17. **"Low – cost and eco – friendly nebulizer spray coated CuInAlS<sub>2</sub> counter electrode for dye sensitized solar cells"** published in Physica B (PEER REVIEW) Vol. 537, Issue No. , February 2018 ISSN : 0921-4526.
18. **"Facile preparation of hierarchical nanostructured CuInS<sub>2</sub> counter electrodes for dye-sensitized solar cells"** published in Materials Research Express (PEER REVIEW) Vol. 4, Issue No. , November 2017 ISSN : 2053-1591.
19. **"Nebulizer spray-deposited CuInGaS<sub>2</sub> thin films, a viable candidate for counter electrode in dye-sensitized solar cells"** published in Solar Energy (PEER REVIEW) Vol. 157, Issue No. , August 2017 ISSN : 0927-0248.
20. **"Effect of solution molarity on optical dispersion energy parameters and electrochromic performance of Co<sub>3</sub>O<sub>4</sub> films"** published in Optical Materials (PEER REVIEW) Vol. 72, Issue No. , July 2017 ISSN : 0925-3467.
21. **"Self assembled sulfur induced interconnected nanostructure TiO<sub>2</sub> electrode for visible light photoresponse and photocatalytic application"** published in Physica E (PEER REVIEW) Vol. 91, Issue No. , April 2017 ISSN : 1386-9477.
22. **"Electrochemical sensing of glucose and photocatalytic performance of porous Co<sub>3</sub>O<sub>4</sub> films by nebulizer spray technique"** published in Materials Chemistry and Physics (PEER REVIEW) Vol. 186, Issue No. , November 2016 ISSN : 0254-0584.
23. **"Effect of sputtering power on properties and photovoltaic performance of CIGS thin film solar cells"** published in Materials research innovations (PEER REVIEW) Vol. 21, Issue No. 5, July 2016 ISSN : 1432-8917.



24. **"Fast Electrochromic response of porous structured Cobalt Oxide (Co<sub>3</sub>O<sub>4</sub>) thin films by novel nebulizer spray pyrolysis technique"** published in Ionics (PEER REVIEW) Vol. 22, Issue No. , April 2016 ISSN : 0947-7047.
25. **"Tunable morphology with selective faceted growth of visible light active TiO<sub>2</sub> thin films by facile hydrothermal method: Structural, optical and photocatalytic properties"** published in Journal of Materials Science: Materials in Electronics (PEER REVIEW) Vol. 27, Issue No. , February 2016 ISSN : 0957-4522.
26. **"Visible light driven photocatalytic degradation of Rhodamine B and Direct Red using cobalt oxide nanoparticles"** published in Ceramics International (PEER REVIEW) Vol. 41, Issue No. , April 2015 ISSN : 0272-8842.
27. **"Self-cleaning and superhydrophobic CuO coating by Jet- nebulizer technique"** published in CrystEng Comm (PEER REVIEW) Vol. 17, Issue No. , February 2015 ISSN : 1466-8033.

#### Publication in Books

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1. **Structural, Optical and Ethanol Gas Sensing Performance of Aluminium Doped Zinc Oxide (AZO) Thin Films by Nebulizer Spray Technique.** Recent Trends in Materials Science and Applications, Springer Proceedings in Physics. :Springer, May 2017.
2. **CuInS<sub>2</sub> layer deposition through nebulizer spray technique for solar cell fabrication.** Recent Trends in Materials Science and Applications, Springer Proceedings in Physics. :Springer, May 2017.

#### Awards Recieved

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Award Name	Presented by	Year	Level	Instituted by / Place	amount
Best paper presentation		11/02/2018	NATIONAL	Recent Trends in Nanomaterials and Thin films Research at AVVM Sri Pushpam College	
Best paper presentation award		29/01/2018	INTERNATIONAL	International Conference on Material Physics at Bishop Heber College	
Best Paper Award		03/03/2015	NATIONAL	Recent trends in Nano Materials and Thin Films Research at AVVM Sri Pushpam College, Thanjavur	

**Signature of Staff**  
**(R.VENKATESH)**