

## **PROFILE**

**Dr. R. SINDHAN M.Sc., M.Phil., PhD.,**

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### ***ACADEMIC QUALIFICATION:***

<b>2015 – 2023</b>	<b>Ph.D., (Physics)</b> N.M.S.S.V.N. College, Madurai. (Madurai Kamaraj University) Grade : Highly commendable
<b>2011 – 2012</b>	<b>M.Phil., (Physics)</b> V.H.N.S.N College, Virudhunagar. (Madurai Kamaraj University) Percentage of marks: 78.9%
<b>2009 – 2011</b>	<b>M.Sc., (Physics)</b> V.H.N.S.N College, Virudhunagar. (Madurai Kamaraj University) Percentage of marks: 77.2%
<b>2006 – 2009</b>	<b>B.Sc., (Physics)</b> V.H.N.S.N College, Virudhunagar. (Madurai Kamaraj University) Percentage of marks: 71.73%
<b>2004 – 2005</b>	<b>XII<sup>th</sup> standard</b> Government Higher Secondary School, Kalligudi. Percentage of marks: 62.58%
<b>2002 – 2003</b>	<b>X<sup>th</sup> standard</b> Government Higher Secondary School, Kalligudi. Percentage of marks: 80.2%

### ***TEACHING EXPERIENCE:***

<b>01.09.2023 – till date</b>	Working as Assistant Professor of Physics (SF), MTN College (Autonomous), Madurai.
<b>24.12.2014 – 31.07.2019</b>	Worked as Assistant Professor of Physics, MKUC College, Thirumangalam, Madurai.
<b>07.06.2012 – 24.04.2014</b>	Worked as Lecturer of Physics, Amman College of Arts and Science, Dindigul.

## RESEARCH EXPERIENCE:

### ➤ Ph.D., Thesis (2015 – 2022)

Title: “Spectroscopic Studies on Gas Phase Diatomic Molecules in Sunspot and Solar Atmosphere”

Research Supervisor: **Dr. S. Ramaswamy**, Formerly Associate Professor and Head, PG and Research Department of Physics, NMSSVN College, Madurai.  
Contact at: [ramaswamy.mdu@mail.com](mailto:ramaswamy.mdu@mail.com)

### ➤ M.Phil., Dissertation (2011 – 2012)

Title: “Experimental Estimation of Energy Collection, Extraction and Utilization Performance of Evacuated Tubular Hot Water System”

## RESEARCH INTEREST:

Gas-Phase Molecular Spectroscopy, Radiative Transition Parameters, Astrophysics, Solar Atmosphere, Sunspot Umbrae, Polymer.

## TECHNICAL SKILLS:

Lab management, working with statistical tools, Microsoft Office, C & C++.

## RESEARCH PUBLICATIONS:

1. P. Sriramachandran\*, **R. Sindhan**, S. Ramaswamy and R. Shanmugavel, “Presence of C<sub>2</sub> Molecular Lines in sunspot Umbral Spectra”, 2016, New Astronomy, **48**, 16 – 23.  
Doi: 10.1016/j.newast.2016.03.004.
2. **R. Sindhan**, P. Sriramachandran, R. Shanmugavel and S. Ramaswamy\*, “Spectroscopic Analysis of Gas Phase Astrophysical Molecule: Beryllium Monofluoride”, 2017, Mechanics, Material Science & Engineering, **9(2)**, 329 – 334.  
Doi: 10.2412/mmse.60.92.355.
3. **R. Sindhan**, P. Sriramachandran, R. Shanmugavel and S. Ramaswamy\*, “On the Effective Temperature of AIC Molecular Lines in Sunspot Umbral Spectra”, 2020, Astrophys. Space Sci., **365**, 157 – 164. Doi: 10.1007/s10509-020-03866-7.
4. **R. Sindhan**, P. Sriramachandran, R. Shanmugavel and S. Ramaswamy\*, “On the Effective Temperature of Large Sunspot Umbra using AIH Molecular Lines”, 2022, New Astronomy, **99**, 101939. Doi: 10.1016/j.newast.2022.101939.
5. **R. Sindhan**, N. Venkatesh Bharathi and S. Ramaswamy\*, “On the effective vibrational temperature of the source using  $(2)^3\Pi - X^3\Pi$  system of GeC molecule”, 2024, Astronomy and computing., (Under review)

## LIST OF PAPERS PRESENTED IN CONFERENCES/SEMINARS:

1. **R. Sindhan**, “Energy Collection, Extraction, Utilization Performance of Hot Water System”, National Conference on Energy Conservation and Renewable energy Technology held at VHNSN College, Virudhunagar, August 26<sup>th</sup> & 27<sup>th</sup> 2011.
2. **R. Sindhan**, P. Sriramachandran, R. Shanmugavel, S. Ramaswamy\*, “Spectroscopic Analysis of  $A^2\Pi_r - X^2\Sigma^+$  System of Gas Phase Astrophysical Molecule: Beryllium monofluoride”, International Conference on Materials Processing and Applications (ICMPA-2016) held at VIT University, Vellore, December 14<sup>th</sup> to 16<sup>th</sup> 2016.

3. **R. Sindhan**, S. Ramaswamy\*, R. Shanmugavel, P. Sriramachandran, “Aluminum Carbide Molecular Lines in Sunspot Spectrum”, National Conference on Advanced Materials and its Applications (NCAMA-2017) held at The SFR College, Sivakasi, July 6<sup>th</sup> and 7<sup>th</sup> 2017.
4. **R. Sindhan**, P. Sriramachandran, R. Shanmugavel, S. Ramaswamy\* “Computation of Radiative Transition Parameters for the  $A^1\Pi - X^1\Sigma^+$  Transition of Aluminium Hydride”, International Conference on Advanced Functional Materials for Energy, Environment and Biomedical Applications (AFMEEB-2017) held at Madurai Kamaraj University, Madurai, December 11<sup>th</sup> and 12<sup>th</sup> 2017.
5. **R. Sindhan**, N. Venkatesh Bharathi, S. Ramaswamy\* “Radiative Transition Parameters for the E-X Transition of Barium Monohydride (BaH) Molecule”, International Conference on Advancement in Material Science and its Applications (ICRAMSA-2023) held at MTN College, Madurai, January 11<sup>th</sup> and 12<sup>th</sup> 2023.

#### **DETAILS OF CONFERENCES/ SEMINARS/ WORKSHOPS PARTICIPATED IN VARIOUS INSTITUTIONS:**

1. Participated in the National level workshop on Micro-Controllers and Embedded Systems held at VHNSN College, Virudhunagar on 03 & 04-07-2009.
2. Participated in the One-day State level Seminar on Recent Advances in Physics held at Devanga Arts College, Aruppukottai on 10-09-2009.
3. Participated in the National Conference on Glimpses of Multi-dimensional Advancements in Physics held at Fatima College, Madurai on 08-01-2010.
4. Participated in the UGC-Sponsored National Conference on Renewable Energy Sources and Technology held at VHNSN College, Virudhunagar on 21 to 23-01-2010.
5. Participated in the Interdisciplinary workshop on Biosensors and Their Applications held at VHNSN College, Virudhunagar on 20-12-2010.
6. Participated in the National Conference on Recent Developments in Superconducting Materials held at Devanga Arts College, Aruppukottai on 15-02-2011.
7. Participated in the MNRE-Sponsored National level Seminar on Innovative Strategy for Technological Developments and Designing New Business Model in Renewable Energy Sector held at VHNSN College, Virudhunagar on 03 & 04-03-2011.
8. Participated in the National level Seminar on Solar Conversion with Nanoparticles (NSSECNP'11) held at Velammal College of Engineering and Technology, Madurai on 26 & 27-08-2011.
9. Participated in the One-day National Seminar on Solar Energy Conversion with Nanoparticles held at Amman College of Arts and Science, Dindigul on 09-02-2013.
10. Participated in the UGC-Sponsored One-day National Seminar on Recent Trends in Physics held at Sourashtra College, Madurai on 20-02-2013.

11. Participated in the National Conference on Design and Applications of Emerging Materials (NCDAEM – 2020) held at NMSSVN College, Nagamalai, Madurai on 19-02-2020.
12. Participated in the Webinar on Micro & Nanotechnology and its Applications held at G.T.N. Arts College, Dindigul on 14-05-2020.
13. Participated in the Webinar on Advanced Materials: Webinar Series-II held at Vels University, Chennai on 28 to 30-05-2020.
14. Participated in the Webinar on The Universe: Reaching Through Radio Waves held at Karunya Institute of Technology and Sciences, Coimbatore on 29-05-2020.
15. Participated in the International Webinar on Advanced Materials (IWAM -2020) held at LRG Government Arts College for Women, Tirupur on 03-06-2020.
16. Participated in the State-level Technical Workshop on Intellectual Property Rights held at MTN College, Madurai on 16 & 17-10-2023.
17. Participated in the One-day National Seminar on Basic Concepts and Research Aspects of Electro Chemical Devices – Batteries, Fuel Cells & Supercapacitors held at Sri Kaliswari College (Autonomous), Sivakasi and Materials Research Center, Coimbatore on 13-12-2023.

***FACULTY DEVELOPMENT PROGRAMME/ SHORT TERM COURSE ATTENDED (OTHER THAN MTNC):***

1. Participated in One Week National Level Online Faculty Development Programme (FDP) on “Advanced Research Methodology in Physical Sciences” held at Rajapalayam Rajus’ College, Rajapalayam on 03-10-2023 to 09-10-2023.
2. Participated in Five Days Faculty Development Program on Advanced Materials for Energy Applications held at Sathyabama Institute of Science and Technology, Chennai on 09-10-2023 to 13-10-2023.
3. Participated in Virtual Faculty Development Program on Quality Improvement of Technical Education and Development of Research held at Sakthi College of Arts and Science for Women, Oddanchatram on 05-12-2023 to 12-12-2023.