

Sterlin Leo Hudson M.

(Fulbright Fellow)

Assistant Professor,

Department of Physics, Institute of Science

Banaras Hindu University,

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[Faculty Page](#) | [Google Scholar](#) | [ResearchGate](#) | [ORCID](#) | [Researcher ID](#) | [Scopus](#)

Education:

- **Ph.D in Physics** (2011) - Banaras Hindu University, Varanasi, India
Supervisor: Padma Shri Late Prof. O.N. Srivastava
Thesis: Investigations on Hydrogen Sorption Behavior of Some Complex Hydrides and Graphene
- **M.Sc in Physics** (2004) - M.S. University, Tirunelveli, India
Percentage of Marks: 74.75%
Rank: Rank holder of the University
- **B.Sc in Physics** (2002) - M.S. University, Tirunelveli, India
Percentage of Marks: 85.54%,
Rank: Institution Topper

Research Interest:

- Micro/mesoporous Materials for Sustainable Technology Applications
- Hydrogen Storage Materials
- Carbon dioxide Capture and Storage Materials
- Supercapacitors & Batteries
- Biosensors and gas sensors
- Instrumentation for Accurate Determination of gas measurements at high pressures

Research Projects Completed:

1. **Project Title:** Investigations on biomass waste-derived micro/mesoporous carbon materials for CO₂ capture and hydrogen storage applications
Funded by: Banaras Hindu University (IoE seed grant)
Total grant: Rs. 20 Lakhs
Duration: 3 years
2. **Project Title:** Investigations on the Nanoconfinement Effect of Light-Weight Metal Hydrides for On-Board Storage of Hydrogen in Zero Emission Vehicles.
Funding Agency: U.S. Department of States & NIST, Washington D.C, USA.
Total grant: USD. 83,100 (~ Rs. 56 Lakhs)
Duration: 18 months
Project ID: 2044/FNPDR/2015 (dated: 27/05/2015)
3. **Project Title:** Investigations on Strategic Materials for Sustainable Energy Storage Applications.
Funding Agency: Department of Science and Technology, New Delhi, India.
Total grant: Rs. 86 Lakhs

Duration: 5 years

Project ID: IFA-12-PH-18 (DST Letter No. DST INSPIRE Faculty Award/2012, dated: 10/09/2012)

Awards & Recognition:

1. **Fulbright Scholar Award (2017)** by the United States Department of States, Washington DC, USA.
2. **Fulbright OLF Award (2016)** by the Institute of International Education (IIE), Washington D.C, USA.
3. **Best Paper Award (2016)** in International Conference on Nanoscience and Nanotechnology for Energy Applications (EApp 2016), Chennai, India.
4. **International Travel Award to visit USA (2014)** by INSA (CICS) and DST (SERB), New Delhi.
5. **NCAMA Young Researcher Award (2013)** by Optical Society of America Chapters, NIT - Trichy.
6. **DST INSPIRE FACULTY Award (2012)** by Department of Science and Technology, New Delhi.
7. **Dr. D.S. Kothari Post-Doctoral Award (2012)** by University Grants Commission, New Delhi.
8. **HEAM Scholar Cash Award (2012)** by Indian Association of Hydrogen Energy and Advanced Materials (IAHEAM), Trivandrum.
9. **CSIR SRF Extn/RA (2012)** by Council of Scientific and Industrial Research, New Delhi.
10. **Visiting Scholar to USA (2011)** by Advanced Materials Corporation, Pittsburgh, USA.
11. **Indo-Swedish Exchange Researcher (2010)** by Swedish National Research Foundation VR-SIDA.
12. **CSIR SRF (2010)** by Council of Scientific and Industrial Research, New Delhi.
13. **Best Presentation Award (2010)**, in International Conference on Nanoscience and Technology, Mumbai.
14. **International Travel Award to visit USA (2010)** by DST (SERB) & CSIR, New Delhi.
15. **Prof. C.D. Ben Endowment Cash Prize (2001)**, for outstanding student in B.Sc
16. **Reviewer for International Journals**
(ACS Photonics, Dalton Transactions, Cogent Physics, Crystal Growth & Design, Solid State Ionics, International Journal of Hydrogen Energy, Science and Engineering of Composite Materials, Inorganic Chemistry, The Journal of Physical Chemistry, Chemistry of Materials, Journal of Nanomaterials etc.)

Refreed Journal Publications:

Scopus Author ID: 16309454400 (h-index: 21)

2026

1. S. Basu, J. Pandey, A. Ramesh, M. A. Shaz and **M. Sterlin Leo Hudson***, "Enhancing the photoactivity and tuning the band structure of graphitic carbon nitride by boron doping and PEDOT:PSS polymer addition for photoelectrochemical water splitting in alkaline medium", *International Journal of Hydrogen Energy*, **202**, 2026, p. 153038.

Impact Factor: 9.2

2. M.N.L. Suseela, P. Gokul, R. Kumar, M.K. Viswanadh, J. Pandey, **M. Sterlin Leo Hudson**, J. Selvin, M.S. Muthu, "Solid phase extraction of palbociclib from palbociclib-loaded therapeutic micelles: Novel synthesis of hybrid reduced graphene oxide-modified magnetic iron oxide (rGO@SiO₂@Fe₃O₄) nanosorbent-based plasma extraction and pharmacokinetics study in rats", *Journal of Pharmaceutical and Biomedical Analysis*, **270**, 2026, p. 117270.

Impact Factor: 3.4

2025

3. J. Pandey, Sourabh Basua, S. Dubey, V. Ganesan, M. A. Shaz, [M. Sterlin Leo Hudson*](#), “Improved electrocatalytic performance of delaminated-MXene and cobalt ferrite nanocomposite for hydrogen evolution in acidic medium”, *International Journal of Hydrogen Energy*, **170**, 2025, p. 151306.

Impact Factor: 9.2

4. P. Vineetha, [M. Sterlin Leo Hudson](#), and A.R. Jayakrishnan, “Piezo-photocatalyst: unveiling unique catalytic properties of piezoelectric materials for photoreduction of CO₂ – a review”, *International Journal of Materials Research*, **116**, 2025, pp.342-349.

Impact Factor: 1.2

5. S. Anchal, S. R. Choudhary, Y. Choudhary, P. K. Bhamu, Jyotsana Pandey, [M. Sterlin Leo Hudson](#), S. N. Dolia, P. A. Alvi and B. L. Choudhary, “Multifaceted characterization of Mn-Doped nanocrystalline NiFe₂O₄ ferrites”, *Journal of the Korean Physical Society*, **88**, 2025, pp. 449-469..

Impact Factor: 1.0

2024

6. R. Kesarwani, A. Bhatnagar, S. K. Verma, [M. Sterlin Leo Hudson](#) and M. A. Shaz*, “Enhancement in hydrogen sorption behaviour of MgH₂ catalyzed by graphene quantum dots”, *International Journal of Hydrogen Energy*, **67**, 2024, pp. 1026-1032.

Impact Factor: 9.2

7. M.N.L. Suseela, A. K. Mehata, B. Vallamkoda, P. Gokul, A. Pradhan, Jyotsana Pandey, J. Selvin, [M. Sterlin Leo Hudson](#), M. S. Muthu*, “Comparative evaluation of liquid-liquid extraction and nanosorbent extraction for HPLC-PDA analysis of cabazitaxel from rat plasma”, *Journal of Pharmaceutical and Biomedical Analysis*, **245**, 2024, p. 116149

Impact Factor: 3.4

8. Ramesh Achayalingam, Sourabh Basu, Prins Kumar Rao, Jyotsana Pandey, S. Nivetha, S. Jayachitra, and [M. Sterlin Leo Hudson*](#), “Electrochemical capacitance and hydrogen adsorption behavior of activated carbon derived from Cattail fiber”, *Energy Storage*, **6(1)**, 2024, p. e579

Impact Factor: 4.0

2023

9. R. Nagar, S. Srivastava, [Sterlin Leo Hudson](#), S. L. Amaya, A. Tanna, M. Sharma, A. Ramesh, S. Sonkaria, V. Khare, S. S. Srinivasan *, “Recent Developments in State-of-the-art Hydrogen Energy Technologies- Review of Hydrogen Storage Materials’, *Solar Compass*, **5(1)**, 2023, pp.100033.
10. A. Ramesh, S. Basu, V. Ganesan, P. K. Soni, S. Manivannan, J. Kandasamy, [M. Sterlin Leo Hudson*](#), and M. A. Shaz*, “ Tuning the Electrochemical Capacitance of Carbon Nanosheets by Optimizing its Thickness through Controlling the Carbon Precursor in Salt-Template”, *Energy Storage*, **5(5)**, 2023; e445.

Impact Factor: 4.0

2022

11. M. Jeyavelan, F. Khurshid, M. Akhil, R. R. Kannan, A. Ramesh, S. Nagarajan and **M. Sterlin Leo Hudson***, "Highly sensitive organic electrochemical transistor for detection of stress-induced cation leakage from plant cells", *Biosensors and Bioelectronics*: **12**, 2022, pp. 100251.

Impact Factor: 11.8

12. R. Kesarwani, V. Shukla, **M. Sterlin Leo Hudson** and M. A. Shaz, "Improved Hydrogen Storage Characteristics of Magnesium Hydride Using Dual Auto Catalysts (MgF₂+CsH)", *International Journal of Hydrogen Energy*, **47(63)**, 2022, pp. 27049-27058.

Impact Factor: 9.2

2021

13. A Ramesh, M Jeyavelan, JA Alex Rajju Balan, ON Srivastava, **M Sterlin Leo Hudson***, "Supercapacitor and room temperature H₂, CO₂ and CH₄ gas storage characteristics of commercial nanoporous activated carbon", *Journal of Physics and Chemistry of Solids*, **152**, 2021, p. 109969.

Impact Factor: 5.9

14. Ashish Bhatnagar, Anant Prakash Pandey, **M Sterlin Leo Hudson**, Pawan K Soni, Satish K Verma, Vivek Shukla, V Sekkar, Manoj Tripathi and ON Srivastava, "Economical synthesis of highly efficient and tunable carbon aerogels for enhanced storage of CO₂ emitted from energy sources", *International Journal of Energy Research* **45(4)**, 2021, pp. 6285-6292.

Impact Factor: 4.2

2020

15. Farheen Khurshid, M Jeyavelan, Tanveer Hussain, **M Sterlin Leo Hudson***, S Nagarajan*, "Ammonia gas adsorption study on graphene oxide based sensing device under different humidity conditions", *Materials Chemistry and Physics*, **242**, 2020, p. 122485.

Impact Factor: 5.2

2019

16. Katherine E Hurst, Thomas Gennett, Jesse Adams, Mark D Allendorf, Rafael Balderas-Xicohtencatl, Marek Bielewski, Bryce Edwards, Laura Espinal, Brent Fultz, Michael Hirscher, **M Sterlin L Hudson**, Zeric Hulvey, Michel Latroche, Di-Jia Liu, Matthew Kapelewski, Emilio Napolitano, Zachary T Perry, Justin Purewal, Vitalie Stavila, Mike Veenstra, James L White, Yuping Yuan, Hong-Cai Zhou, Claudia Zlotea, Philip Parilla," An international laboratory comparison study of volumetric and gravimetric hydrogen adsorption measurements", *ChemPhysChem*, **20 (15)**, 2019, pp. 1997-2009.

Impact Factor: 2.4

17. F. Khurshid, M. Jeyavelan, **M. Sterlin Leo Hudson***, S Nagarajan*, "Ag-doped ZnO nanorods embedded reduced graphene oxide nanocomposite for photo-electrochemical applications", *Royal Society Open Science*, **6(2)**, 2019, 181764.

Impact Factor: 3.0

2018

18. A. Ramesh, M. Jeyavelan and **M. Sterlin Leo Hudson***, "Electrochemical properties of reduced graphene oxide derived through camphor assisted combustion of graphite oxide", *Dalton Transactions*, **47(15)**, 2018, pp. 5406-5414.

Impact Factor: 3.3

19. Farheen Khurshid, M. Jayavelan, Keisuke Takahashi, [M. Sterlin Leo Hudson*](#) and Samuthira Nagarajan*, "Aryl fluoride functionalized graphene oxides for the application of excellent room temperature ammonia sensitivity/selectivity", *RSC Advances* **8(36)**, 2018, pp. 20440-20449.

Impact Factor: 6.1

20. Farheen Khurshid, M. Jayavelan, [M. Sterlin Leo Hudson*](#) and Samuthira Nagarajan*, "Organic Semiconductor/Graphene Oxide Composites as a Photo-Anode for Photo-Electrochemical Applications", *RSC Advances* **8(63)**, 2018, PP.35959-35965.

Impact Factor: 6.1

21. H. G. T. Nguyen, L. Espinal, R. D. van Zee, M. Thommes, B. Toman, [M. Sterlin Leo Hudson](#), E. Mangano, S. Brandani, D. P. Broom, M. J. Benham, K. Cychosz, P. Bertier, F. Yang, B. M. Krooss, R.L. Siegelman, M. Hakuman, K. Nakai, A. D. Ebner, L. Erden, J. A. Ritter and A. Moran, "A Reference High-Pressure CO₂ Adsorption Isotherm for Ammonium ZSM-5 Zeolite: Results of an Interlaboratory Study", *Adsorption* **24(7)**, 2018, pp. 531-539.

Impact Factor: 3.3

2017

22. A. Bhatnagar, B. K. Gupta, P. Tripathi, A. Veziroglu, [M. Sterlin Leo Hudson](#), M.A. Shaaz and O.N. Srivastava, "Development and demonstration of air stable rGO-EC@AB₅ type hydrogenated intermetallic hybrid for hydrogen fueled devices", *Advanced Sustainable Systems* **1(11)**, 2017 1700087.

Impact Factor: 5.6

23. M. Jeyavelan, A. Ramesh, R. Rathes Kannan, T. Sonia, K. Rugunandhiri and [M. Sterlin Leo Hudson*](#), "Facile synthesis of uniformly dispersed ZnO nanoparticles on polystyrene/rGO matrix and its superior electrical conductivity and photocurrent generation", *RSC Advances* **7(50)**, 2017, pp. 31272-31280.

Impact Factor: 6.1

24. Zhao Qian, H. Raghubanshi, [M. Sterlin Leo Hudson](#), O.N. Srivastava, Xiangfa Liu and Rajeev Ahuja, "Ab initio insight into graphene nanofibers to destabilize hydrazine borane for hydrogen release", *Chemical Physics Letters* **669** (2017) pp.110-114.

Impact Factor: 2.9

2016

25. [M. Sterlin Leo Hudson*](#), K. Takahashi, A. Ramesh, S. Awasthi, A.K. Ghosh, P. Ravindran and O.N. Srivastava, "Graphene decorated with Fe nanoclusters for improving the hydrogen sorption kinetics of MgH₂ – experimental and theoretical evidence", *Catalysis Science and Technology* **6(1)**, 2016, pp. 261-268.

Impact Factor: 4.0

2014

26. [M. Sterlin Leo Hudson*](#), Himanshu Raghubanshi, T. Sadhasivam, Seema Awasthi, Ashish Bhatnager, Satoru Simizu, S.G. Sankar and O.N. Srivastava, "High pressure hydrogen uptake of reduced graphene oxide and graphene sheets decorated with Fe nanoclusters", *International Journal of Hydrogen Energy* **39(16)**, 2014, pp. 8311-8320.

Impact Factor: 9.2

2013

27. T. Sadhasivam, [M. Sterlin Leo Hudson](#), SK. Pandey, A. Bhatnagar, MK. Singh, K. Gurunathan and ON. Srivastava, "Effects of nano size mischmetal and its oxide on improving the hydrogen sorption behavior of MgH_2 ", *International Journal of Hydrogen Energy*, **38(18)**, 2013, pp. 7353-7362.

Impact Factor: 9.2

28. S. K. Pandey, A. Bhatnagar, R. R. Shahi, [M. Sterlin Leo Hudson](#), M. K. Singh, and O. N. Srivastava, "Effect of TiO_2 Nanoparticles on the Hydrogen Sorption Characteristics of Magnesium Hydride", *Journal of Nanoscience and Nanotechnology*, **13(8)**, 2013, pp. 5493-5499.

Impact Factor: 1.1

29. A. Bhatnagar, S. K. Pandey, R. R. Shahi, [M. Sterlin Leo Hudson](#), M. A. Shaz and O.N. Srivastava, "Synthesis, characterization and hydrogen sorption studies of mixed sodium-potassium alanate", *Crystal Research and Tech.*, **48(8)**, 2013, pp. 520-531.

Impact Factor: 2.1

2012

30. Z. Qian, [M. Sterlin Leo Hudson](#), H. Raghubanshi, R. H. Scheicher, B. Pathak, C. M. Araujo, A. Blomqvist, B. Johansson, O. N. Srivastava, and R. Ahuja, "Excellent Catalytic Effect of Graphene Nanofibres on Hydrogen Release of Sodium Alanate", *Journal of Physical Chemistry C*, **116(20)**, 2012, pp. 10861-10866.

Impact Factor: 3.4

31. [M. Sterlin Leo Hudson](#), H. Raghubanshi, D. Pukazhselvan and O.N. Srivastava, "Carbon nanostructures as catalyst for improving the hydrogen storage behavior of sodium aluminum hydride", *International Journal of Hydrogen Energy*, **37(3)**, 2012, pp.2750-2755.

Impact Factor: 9.2

32. J. Singh, [M.S.L. Hudson](#), S.K. Pandey and O.N. Srivastava, "Structural and hydrogenation studies of ZnO & Mg doped ZnO nanowires", *International Journal of Hydrogen Energy*, **37(4)**, 2012, pp. 3748-3754.

Impact Factor: 9.2

33. D. Pukazhselvan, [M. SterlinLeo Hudson](#) and O.N. Srivastava, "Direct synthesis of sodium alanate using mischmetal nanocatalyst", *International Journal of Hydrogen Energy*, **37(4)**, 2012, pp. 3697-3704.

Impact Factor: 9.2

2011

34. H. Raghubanshi, [M. Sterlin Leo Hudson](#) and O.N. Srivastava, "Synthesis of helical carbon nanofibres and its application in hydrogen desorption", *International Journal of Hydrogen Energy*, **36(7)**, 2011, pp. 4482-4490.

Impact Factor: 9.2

2010

35. [M. Sterlin Leo Hudson](#), H. Raghubanshi, D. Pukazhselvan and O.N. Srivastava, "Effects of helical GNF on improving the dehydrogenation behavior of $LiMg(AlH_4)_3$ and $LiAlH_4$ ", *International Journal of Hydrogen Energy*, **35(5)**, 2010, pp. 2083-2090.

Impact Factor: 9.2

36. D. Pukazhselvan, **M. Sterlin Leo Hudson**, A.S.K. Sinha, O.N. Srivastava, "Studies on metal oxide nanoparticles catalyzed sodium aluminum hydride", *Energy*, **35(12)**, 2010, pp. 5037-5042.

Impact Factor: 10.1

2009

37. **M. Sterlin Leo Hudson**, P.K. Dubey, D. Pukazhselvan, S. K. Pandey, R. K. Singh, H. Raghubanshi, R. R. Shahi and O.N. Srivastava, "Hydrogen energy in changing environmental scenario: Indian context", *International Journal of Hydrogen Energy*, **34(17)**, 2009, pp. 7358-7367.

Impact Factor: 9.2

2007

38. **M. Sterlin Leo Hudson**, D. Pukazhselvan, G. I. Sheeja and O.N. Srivastava, "Studies on synthesis and dehydrogenation behavior of magnesium alanate and magnesium-sodium alanate mixture", *International Journal of Hydrogen Energy*, **32(18)**, 2007, pp. 4933-4938.

Impact Factor: 9.2

39. D. Pukazhselvan, **M. Sterlin Leo Hudson**, B. K. Gupta, M.A. Shaz and O.N. Srivastava, "Investigations on the desorption kinetics of Mm-doped NaAlH₄", *Journal of Alloys and Compounds*, **439(1-2)**, 2007, pp. 243-248.

Impact Factor: 6.7

40. P.R. Mishra, D. Pukazhselvan, **M. Sterlin Leo Hudson**, S. K. Pandey and O.N. Srivastava, "Hydrogen energy in Indian context and R&D efforts at Banaras Hindu University", *International Journal of Environmental Studies*, **64(6)**, 2007, pp. 761-776.

Impact Factor: 1.7

Book Chapters:

1. A. Ramesh, Sourabh Basu, **M. Sterlin Leo Hudson***, "Polymer-Metal Phosphide Nanocomposites for Flexible Supercapacitors", *Recent Advancements in Polymeric Materials for Electrochemical Energy Storage*, Springer, ISBN: 978-981-99-4193-3. ([online link](#))
2. A. Ramesh, **M. Sterlin Leo Hudson***, K. Takahashi, "Graphene decorated metal nanoclusters as an effective novel catalyst for improving the hydrogen storage behaviour of MgH₂", *Materials for Energy, Efficiency and Sustainability, Chapter 5: Fuel Cells and Hydrogen, TechConnect Briefs 2016, USA*. ISBN: 978-0-9975-1171-0. ([online link](#))
3. **M.S.L. Hudson***, S.G. Sankar, S. Simishu, O.N. Srivastava, "Hydrogen storage by reduced graphene oxide and graphene-like nanosheets decorated with Fe nanoclusters", *Nanotechnology 2014: Electronics, Manufacturing, Environment, Energy & Water, NSTI Publications, Taylor & Francis group, CRC Press, USA*. ISBN: 978-1-4822-5830-1. ([online link](#))

Postdoctoral Research & Teaching:

- **Assistant Professor (July 2020 - till date)** – Banaras Hindu University, Varanasi, India.
- **Fulbright Postdoctoral Fellow (Sept. 2015 – Feb. 2017)** – National Institute of Standards and Technology (NIST), Washington D.C, USA.
- **DST-INSPIRE Faculty (Jan 2013 – July 2018)** – Central University of Tamil Nadu, Thiruvavur, India.

- **UGC Dr. D.S. Kothari Post-Doctoral Fellow (July 2012 – Dec 2012)** - Banaras Hindu University, India
Project: Synthesis of Novel Carbon Nanostructures and its Applications in Hydrogen Storage
- **CSIR-SRF Extn/RA (April 2012 – June 2012)** - Banaras Hindu University, Varanasi, India
Project: Investigations on Light-weight Materials for Hydrogen Storage

PhD Students Guided:

1. **Dr. Ramesh A.** (Awarded in 2018), Central University of Tamil Nadu. Thesis: “Investigations on novel nanostructured materials for sustainable energy applications”,
2. **Mr. Sourabh Basu** (2021 - ongoing), Banaras Hindu University.
3. **Mr. Prins Kumar Rao** (2021 - ongoing), Banaras Hindu University.
4. **Ms. Jyotsana Pandey** (2022 - ongoing), Banaras Hindu University.

Administrative Responsibility:

1. **Board of Studies Member (2016-2017)** for M. Tech Materials Science and Nanotechnology, School of Technology, Central University of Tamil Nadu.

Completed International Technical Reports:

1. **SAFE OPERATING PROCEDURE FOR GAS CABINET FOR DISPENSING FLAMMABLE GASES TO GAS MEASUREMENT SYSTEMS**, Laura Espinal, **Sterlin Michael Raj** and Giang Nguyen, National Institute of Standards and Technology (NIST), Washington D.C., USA.
2. **STANDARD OPERATING PROCEDURE FOR HIGH-PRESSURE, 4-CHANNEL VOLUMETRIC INSTRUMENT (AMC)**, Giang Nguyen, **Sterlin Michael Raj** and Laura Espinal, National Institute of Standards and Technology (NIST), Washington D.C., USA.

Completed International Inter-Laboratory Round Robin Experiments:

1. **HIGH PRESSURE HYDROGEN STORAGE EXPERIMENTS ON POROUS CARBON NANOMATERIAL.** Sample supplied by National Renewable Energy Laboratory (NREL), USA. Experiments were conducted in National Institute of Standards and Technology (NIST), Washington D.C., USA.
2. **AN INTERNATIONAL LABORATORY COMPARISON STUDY OF VOLUMETRIC AND GRAVIMETRIC HYDROGEN ADSORPTION MEASUREMENTS**, Sample supplied by National Institute of Standards and Technology (NIST), Washington D.C., USA. Experiments were conducted in National Institute of Standards and Technology (NIST), Washington D.C., USA.

International Conference Presentations:

1. **Invited Oral: M. Sterlin Leo Hudson**, “The Paradigm Shift of Hydrogen Energy”, *International conference on Energy and Advanced Materials (ICEAM-2023)*, New Delhi, India, 02-11-2023.
2. **Invited Oral: M. Sterlin Leo Hudson**, “Hydrogen – The Fuel of Future”, *2nd International conference on Advanced Nanomaterials for Energy and Environmental Applications (ICANEE-2023)*, Karaikudi, India, 10-02-2023.
3. **Invited Oral: M. Sterlin Leo Hudson**, “Optimization of measurement errors through an international round robin experiment for the accurate determination of hydrogen and CO₂ storage” *International Conference on Energy and Advanced Materials (ICEAM-2021)*, New Delhi, India, 22-10-2021.

4. **Oral:** H.G. Nguyen, J. Horn, M. Bleakney, **Sterlin Hudson**, Laura Espinal*, “**Understanding material characteristics through fingerprint traits from helium pycnometry**”, 255th American Chemical Society Meeting and Exposition, New Orleans, Louisiana, USA, 20-03-2018.
5. **Poster:** A. Ramesh, M. Jeyavelan and **M. Sterlin Leo Hudson***, “**High pressure H₂, CH₄ and CO₂ uptake characteristics of graphene-like sheets derived from camphor assisted exfoliation of graphite oxide**”, 2017 TechConnect World Innovation Conference & Expo and National Innovation Summit, Washington D.C., USA. 16-05-2017.
6. **Invited Oral:** **M. Sterlin Leo Hudson***, **Critical calibration parameters for high-pressure volumetric gas adsorption measurement and CO₂, CH₄ & H₂ isotherm of three NIST Reference Zeolite Materials**, Indo-Norway Workshop on Advanced Materials, JNCASR, Bangalore 25-04-2017.
7. **Oral:** **M. Sterlin Leo Hudson**, H.G. Nguyen, J.C. Horn, B.M. Boyerinas, M. Thommes, M. L. Green, R.D. Van Zee and L. Espinal, “**Using three NIST reference zeolite materials to study the effect of pore metrics on the measurement of high-pressure CO₂ adsorption isotherm**, American Institute of Chemical Engineers Annual Meeting (AIChE 2016), San Francisco, USA. 15-11-2016.
8. **Poster:** H.G. Nguyen, **Sterlin Hudson**, Laura Espinal, **Preliminary results from a round robin test on high-pressure CO₂ adsorption isotherm measurement at 20 C using a NIST reference zeolite**, 12th International Conference on the Fundamentals of Adsorption 2016, Friedrichshafen, Germany.
9. **Oral:** A. Ramesh, **M. Sterlin Leo Hudson***, K. Takahashi, “**Graphene decorated metal nanoclusters as an effective novel catalyst for improving the hydrogen storage behaviour of MgH₂**”, TechConnect World Innovation Conference & Expo 2016, Washington DC, USA. 22-05-2016.
10. **Poster:** M. Jeyavelan, A. Ramesh, T. Sonia, K. Rugunandhiri and **M. Sterlin Leo Hudson***, **Enhanced Conductivity of ZnO nanorods/rGO composites for photo induced current collection in optoelectronic devices**, TechConnect World Innovation Conference & Expo 2016, Washington DC, USA. 22-05-2016.
11. **Oral:** **M. Sterlin Leo Hudson***, **Metal nanoclusters decorated graphene as an effective novel catalyst for hydrogen storage applications**, International Conference on Nanoscience and Nanotechnology for Energy Applications (EApp 2016), Chennai, India 27-06-2016.
12. **Oral:** **M. Sterlin Leo Hudson***, “**Improving the Hydrogen Storage Characteristics of MgH₂ using Nano-TiO₂ for Clean Energy Applications**”, International Conference on Sustainable Energy Technologies (ICSET 2014), Coimbatore, India. 12-12-2014.
13. **Poster:** **M. Sterlin Leo Hudson***, “**Improved Hydrogen Storage Behaviour of Thermally and Chemically Modulated Graphene Sheets**”, International Conference on Sustainable Energy Technologies (ICSET 2014), Coimbatore, India. 12-12-2014.
14. **Oral:** **M. Sterlin Leo Hudson**, O.N. Srivastava, S. Simizu, S.G. Sankar, “**Hydrogen uptake of thermally and chemically modulated graphene oxide**”, TechConnect World Conference & Expo (2014), Washington DC, USA 17-05-2014.
15. **Poster:** **M. Sterlin Leo Hudson**, O.N. Srivastava, S. Simizu, S.G. Sankar **Hydrogen storage by reduced graphene oxide and graphene-like nanosheets decorated with Fe nanoclusters**, TechConnect World Conference & Expo (2014), Washington DC, USA
16. **Oral:** T. Sadhasivam, **M. Sterlin Leo Hudson** and O.N. Srivastava, “**Effect of La, Ce, Mm, La₂O₃, CeO₂ and Mm-oxide on enhancing the hydrogenation behaviour of MgH₂**”, World Hydrogen Energy Conference (WHEC 2012), Toronto, Canada.
17. **Poster:** **M. Sterlin Leo Hudson** and O.N. Srivastava, “**Synthesis of graphene and graphene bearing composites and their properties**”, International Conference on Multifunctional Materials, (ICMFM 2011), Varanasi, India

18. Oral: J. Singh, **M. Sterlin Leo Hudson**, S.K. Pandey and O.N. Srivastava, “**Structural and hydrogenation studies of ZnO & Mg doped ZnO nanowires**”, *International Conference on Renewable Energy (ICRE 2011)*, Rajasthan, India.
19. Oral: **M. Sterlin Leo Hudson**, H. Raghubanshi, D Pukazhselvan and O. N. Srivastava, “**Carbon Nanostructures as Catalyst for Improving the Hydrogen Storage Behavior of Complex Aluminium Hydride**”, *American Institute of Chemical Engineers 2010 (AIChE 2010) Annual Meeting*, Salt Lake City, Utah, USA 9-11-2010.
20. Oral: D. Pukazhselvan, **M. Sterlin Leo Hudson** and O.N. Srivastava, “**Studies on some metal oxide nanoparticles as catalysts for NaAlH₄**”, *International Conference on Nano Science and Technology: (ICONSAT-2010) Mumbai*, India. 18-02-2010 (**Awarded as best poster**)
21. Oral: **M. Sterlin Leo Hudson**, Himanshu Raghubanshi, D. Pukazhselvan and O.N. Srivastava, “**Graphitic nanofibres as catalyst for improving the dehydrogenation behavior of complex aluminium hydrides**”, *World Hydrogen Energy Conference (WHEC 2010)*, Messe Essen, Germany. 16-21 May 2010.
22. Oral: **M. Sterlin Leo Hudson** and O.N. Srivastava, “**Shift towards environmentally friendly hydrogen fuel economy**”, *International Conference on Strategic Management of Energy, Environment and Dissaster for Sustainable Developments (ICONSMEEDS-2010)*, Varanasi, India.
23. Poster: D. Pukazhselvan, **M. Sterlin Leo Hudson**, G. Irene Sheeja and O.N. Srivastava, “**Investigations on some complex Hydride**”, *World Hydrogen Energy Conference: (WHEC-2008)*, Queensland, Australia.
24. Oral: **M. Sterlin Leo Hudson**, D. Pukazhselvan, Himanshu Raghubanshi and O.N. Srivastava, “**Mechanochemical method of approach for the synthesis of magnesium alanate, lithium-magnesium alanate and magnesium sodium alanate mixture**”, *World Hydrogen Technology Convention (WHTC-2009)*, New Delhi, India. 27-08-2009.
25. Oral: **M. Sterlin Leo Hudson**, D. Pukazhselvan and O.N. Srivastava, “**Role of Hydrogen Energy in Changing Environmental scenario: Indian Context**”, *International Workshop on Bio-hydrogen Production Technology (IWBT-2008)*, Kharagpur, India.
26. Poster: D. Pukazhselvan, **M. Sterlin Leo Hudson**, Bipin Kumar Gupta and O.N. Srivastava, “**Hydrogen Storage Characteristics of CNT doped NaAlH₄**”, *World Hydrogen Energy Conference: (WHEC-2006)*, Lyon, France.

Scientific Visits & Invited Talks in Abroad Institutions:

1. “**Shift to Hydrogen Economy and its Challenges**”, City College of San Francisco, San Francisco, USA (17-Nov-2016)
2. “**Recent Advances in Hydrogen Storage and development of hydrogen powered small cars**”, University of Pittsburgh, Pittsburgh, USA. (11-Nov-2011)
3. “**ZrFe Based Materials for Ultra Low Pressure Hydrogen Storage Devices**”, Delaware State University, Delaware, USA. (14-Nov-2011).
4. “**High Sensitive Hydrogen Uptake Measurements of Porous Nanomaterials**” Advanced Materials Corporation, Pittsburgh, USA. (12-Nov-2011).
5. “**Novel Material Tailoring Approach for Improving Hydrogen Storage Behaviour of Complex Metal Hydrides**”, University of Nevada, Reno, USA. (18-Nov-2011).
6. “**Carbon Nanomaterials Catalyzed Complex Metal Hydrides for On-board Hydrogen Storage**”, Advanced Materials Corporation, Pittsburgh, USA. (12-Nov-2010).

7. **“Layered Graphene Nanofibers Induced Enhanced Hydrogen Uptake and Release of Complex Metal Hydrides”**, *Uppsala University, Uppsala, Sweden*. (10-Feb-2010)

Institutional Seminars/Invited Talks in Indian Institutions:

1. **Recent Trends in Hydrogen Production and Storage**, *Indian Institute of Space Technology (IIST), Trivandrum* (05-12-2018)
2. **Recent Developments in Energy Storage Materials**, in the AICTE sponsored One Week Short Term Course on Research Advances in Materials Science (RAMS2017) during 14-20 December 2017 at *Thiyagarajar College of Engineering, Madurai*.
3. **Hydrogen: The Ultimate Fuel of the Future**, *Central University of Tamil Nadu* (08-09-2017).
4. **Calibration and Measurement Errors in High Pressure Gas Measurements**, *Banaras Hindu University, Varanasi* (07-06-2017).
5. **Hydrogen storage materials and its applications in the development of clean energy devices**, *Central University of Tamil Nadu* (06-01-2014).
6. **Applications of carbon nanostructures in hydrogen storage**, *Central University of Tamil Nadu* (29-11-2012).
7. **Hydrogen storage materials and feasibility study in hydrogen fuelled small cars**, *Indian Institute of Science Education and Research (IISER) Trivandrum* (29-11-2011).

National Conference/Workshop Papers:

1. Size dependent catalytic effect of nano-TiO₂ in improving the hydrogen storage behaviour of magnesium hydride, *Nano India, Thanjavur, January 2015*.
2. Indian Association for Hydrogen Energy and Advanced Material *HEAM Scientist Meet*, Trivandrum, November 2014.
3. Indian Association for Hydrogen Energy and Advanced Material *HEAM Scientist Meet*, Trivandrum, December 2013.
4. National Conference on Advanced Materials and its Applications (*NCAMA*), NITT Trichy March 2013.
5. Indian Association for Hydrogen Energy and Advanced Material *HEAM Scientist Meet*, Trivandrum, December 2012.
6. Workshop on Nano and Advanced Materials and Their Applications, BHU, Varanasi, 10-16th April 2012.
7. 5th One Day Conference on *New Trends in Research*, BHU, Varanasi, 2012.
8. Indian Association for Hydrogen Energy and Advanced Material *HEAM Scholar Meet*, Trivandrum, March 2012.
9. Nanomaterials & Applications: Present Position and Road Ahead, BHU, Varanasi, 2011.
10. 98th Indian Science Congress Association, Chennai, 2011.
11. 4th One Day Conference on *New Trends in Research*, BHU, Varanasi, 2011.
12. Workshop on Multifunctional Materials, BHU, Varanasi, 6th December 2010
13. 97th Indian Science Congress Association, Trivandrum, 2010.
14. 3rd One Day Conference on *New Trends in Research*, BHU, Varanasi, 2010.
15. 2nd One Day Conference on *New Trends in Research*, BHU, Varanasi, 2009.
16. Symposium on Recent Developments in Nanomaterials, BHU, Varanasi, 2007.

17. A Two-Day National Workshop on Burner Design for Clean and Efficient Combustion (BDCEC), IIT Madras, Chennai, 16-17th November 2007.
18. 1st One Day Conference on *New Trends in Research*, BHU, Varanasi, 2007.
19. National Workshop on Heterogeneous Catalysis and Kinetics, IIT BHU, Varanasi, 12-21st June 2006.

Conference/Workshop Organized:

1. Two days National Workshop cum Conference on Structural Analysis of Functional and Energy Storage Materials (NWCSAFESM-2025), Banaras Hindu University, April 24-25, 2025.
2. Three days International Conference on Hydrogen Energy and Advanced Materials (ICHEAM-2023), Banaras Hindu University, April 22-24, 2024.
3. Two days National Conference on Hydrogen Energy and Advanced Materials (NCHEAM-2023), Banaras Hindu University, April 26-27, 2023.
4. 27th International Conference of the International Academy of Physical Sciences on Hydrogen Energy and Nano Materials, Banaras Hindu University, October 26-28, 2021.
5. Two-day Workshop on Advanced Experimental Techniques (AET - 2018), Central University of Tamil Nadu, 15 & 16 March, 2018.
6. Lecture Series in Physics II (LIP-2018), Central University of Tamil Nadu, 10-14 March, 2018.
7. Workshop on Advances in Computational Materials Science (ACMS-2015), Central University of Tamil Nadu, 23-25 April, 2015.

M.Sc Projects/Dissertations Guided:

1. **Ms. Yashi Srivastava**, "2D Layered Materials for Electrochemical Energy Storage", Banaras Hindu University, 2026
2. **Mr. Dineswar Kalapa**, "Electrochemical and structural investigation of layered transition metal-based composite for energy storage devices", Banaras Hindu University, 2026
3. **Mr. Shubham Mishra**, "Fabrication of metal oxide thin film for photoelectrochemical application", Banaras Hindu University, 2025
4. **Mr. Kamal Kishore**, "MXene based supercapacitor and application", Banaras Hindu University, 2025
5. **Mr. Soumadeep Mukherjee**, "Fabrication of MXene-GCN Nanocomposite Based Photoelectrode for Enhanced Hydrogen Production", Banaras Hindu University, 2024
6. **Mr. Anup Kumar Giri**, "Investigations on MXene and activated carbon composite as an effective electrode material for Supercapacitor Applications", Banaras Hindu University, 2024
7. **Ms. Nilesh Bhati**, "Fabrication of Photoelectrodes and its Application for Photo-electrolysis of Water for Hydrogen Production", Banaras Hindu University, 2023
8. **Mr. Ravi Shankar Kumar**, "Investigation on Porous Carbon for Desalination of Water by Capacitive Deionization (CDI)", Banaras Hindu University, 2023
9. **Mr. Shiv Shakti Tiwari**, "Graphene/Metal Oxide Nanocomposite for Hydrogen Production", Banaras Hindu University, 2022
10. **Ms. Jyostana Pandey**, "Studies on AB5 type alloys for hydrogen storage applications, Banaras Hindu University, 2022
11. **Mr. Adi Prathap Singh**, "Amorphous Carbon from Bio-waste for Electrochemical Supercapacitor Application", Banaras Hindu University, 2022
12. **Ms. Samridhi Srivastava**, "Microporous Carbon Material for Supercapacitor Application", Banaras Hindu University, 2021
13. **Ms. Arya R S**, "Coconut Sprout Derived Carbon Electrode for Supercapacitors", Central University of Tamil Nadu, 2018.

14. **Ms. S. Jayachitra**, "Design and Fabrication of Organic Electrochemical Transistor", Central University of Tamil Nadu, 2018.
15. **Ms. R. Prathiba**, "Synthesis and Characterization of Fe and Ag doped ZnO for Optoelectronic Applications", Central University of Tamil Nadu, 2018.
16. **Ms. I. Karthika**, "Graphite Oxide for Room Temperature Ammonia Sensing Application, Central University of Tamil Nadu, 2018.
17. **Ms. S. Nivetha**, "Biomass Derived Activated Carbon as Electrode Material for Supercapacitor Application", Central University of Tamil Nadu, 2018.
18. **Mr. George V Alexander** – "Graphene based flexible electrodes for electrochemical energy storage", Central University of Tamil Nadu, 2015.
19. **Ms. T. Sonia** – "Investigations on ZnO nano rods-rGO Composites for Dye Sensitized Solar Cell Applications", Central University of Tamil Nadu, 2015.
20. **Ms. K. Rugunandhiri** – "Graphene-TiO₂ Quantum Dot Composites for Solar Cell Applications", Central University of Tamil Nadu, 2015.

Summer Internship Guided:

1. **Ms. T. Gomathi**, 01-05-2017 to 26-05-2017 "Synthesis and characterization of graphene", from Women Christian College, Chennai.
2. **Ms. D. Keerthika**, 01-05-2018 to 31-05-2018, "Carbon derived from cat tail fibres for supercapacitor applications", from Meenakshi College for Women, Chennai.
3. **Ms. K. Karunya**, 01-05-2018 to 31-05-2018, "ZnO based dye sensitized solar cells", from Ethiraj College for Women, Chennai.