

The LORD is my shepherd; I shall not want. Psalm 23:1

Dr Indra Neel Pulidindi

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1. Biography

- Postdoctoral fellow in Prof. Xinling Wang's laboratory at Shanghai Jiao Tong University, China (2019-2021)
- Advanced scientific-brain fellowship of the Korean Federation of Science and Technology Societies in the laboratory of Prof. Tae Hyun Kim at Konju National University and Hanyang University, Republic of Korea (2016-2017)
- Postdoctoral fellow in the laboratory of Prof. Aharon Gedanken at Bar-Ilan University, Israel (2010-2016)
- Received Ph D degree from Indian Institute of Technology, Madras (IITM) in 2010 (Supervisor: Professor T K Varadarajan; Co-supervisor: Professor B Viswanathan)
- Received M.Sc., degree from Andhra University, India in 2002 (Recipient of Prof. B. S. V. Raghava Rao Memorial Prize and Prof. R. Sambasiva Rao Prize for securing class first in M. Sc., I year in 2001 and recipient of Prof. M. N. Sastry Shastaibdpoorthi Celebration Gold Medal for securing class first in M. Sc., II year in 2002)
- Granted 1 Indian patent, applied for 4 US patents, published 42 peer-reviewed manuscripts, 1 book, 1 e-book and 12 book chapters
- Expertise: Composites (CFRPs), Biofuels and biochemicals, Catalysis, Fuel cells, Carbon materials and Heteropoly acids
- As a referee and guest editor, to various journals published by MDPI, Bentham, Elsevier, and ACS, refereed over 100 manuscripts

2. Patents

- 1 Gedanken A, **Pulidindi IN**, Betina T, Solar-aided conversion of marine algae and biomass to bioethanol, US patent, Provisional patent application No 62450107, 25th January 2017.
- 2 Gedanken A, **Pulidindi IN**, Converting CO₂ into a commercially important chemical, US Provisional Patent Application No.134512, January 2012
- 3 Gedanken A, **Pulidindi IN**, Mariana Rodriguez Hakim, Patricia Mayer, Decomposition of cellulose under microwave irradiation, US Patent, Provisional patent application No. 131772, October 2011.
- 4 Gedanken A, Schwarz R, **Pulidindi IN**, Accelerating the fermentation of glucose using a sonochemical process with the aid of yeast, US patent, Provisional patent application No. 124726, March 2011.
- 5 Balasubramanian V, **Neel, PI**, Varadarajan TK, Preparation of activated carbon from botanical source, Indian Patent No. IN200700376-I4, Patent Assignee: INDIAN INST TECHNOLOGY.

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3. Publications

2021

42. Yang CC, Zhu DD, Sun CY, Chen BY, Li YH, **Pulidindi IN**, Zheng Z, Wang XL (2021) Electrothermal responsive self-healing for carbon fiber/epoxy interphase based on Diels-Alder adducts, *Composites Science and Technology*, 208, 108767.

41. **Pulidindi IN**, Gedanken A (2021) Biofuels and biochemicals from biomass. *Open Journal of Chemistry* 7(1): 022-024.

40. Tangy A, **Pulidindi IN**, Asmita Dutta, Arie Borenstein (2021) Strontium-Oxide Nanoparticles for Biodiesel Production: Fundamental Insights and Recent Progress. *Energy Fuels*, 35 (1), 187-200.

2020

39. Ahmad MS, **Pulidindi IN**, Li CL (2020) Recent advances in C-CN and C-H bond activation of green nitrile (MeCN) for organo-complexation, cyanation and cyanomethylation. *New Journal of Chemistry*, 44 (40), 2020, 17177-17197.

39. (retracted paper). Ahmad MS, Pulidindi IN, Zengming S (2020) Metal-catalyzed Cyanation of Aromatic Hydrocarbon with less toxic nitriles as a Cyano Source. Tetrahedron, 76, 131388. [Paper was retracted due to failure of ethics on part of the authors Dr Ahmad and Dr Pulidindi: This article has been retracted at the request of the Editor-in-Chief and Professor Zengming Shen. Professor Shen did not consent to being added as an author on this paper, they were not informed of the submission to Tetrahedron nor were they involved in the preparation or revision of this work].

38. Nayak A, **Pulidindi IN**, Chinta SR (2020) Novel strategies for glucose production from biomass using heteropoly acid catalyst. *Renewable Energy*, 159, 215-220.

2019

37. Mishra RK, Kumar VB, Victor A, **Pulidindi IN**, Gedanken A (2019) Selective Production of furfural from the dehydration of xylose using Zn doped CuO Catalyst, *Ultrasonics – Sonochemistry*, 56, 55-62.

2018

36. **Pulidindi IN**, Kim TH (2018) Conversion of levulinic Acid from various herbaceous biomass species using hydrochloric acid and effects of particle size and delignification, *Energies*, 11, 621.

35. Rajesh D, **Pulidindi IN**, Pandurangan A, Mahendiran C (2018) Pd-NiO decorated multiwalled carbon nanotubes supported on reduced graphene oxide as an efficient electrocatalyst for ethanol oxidation in alkaline medium, *Applied Surface Science*, 442, 787-796.

2017

34. Betina T, **Pulidindi IN**, Chitturi VR, Arava LMR, Varvak A, Foran E, Banin E, Gedanken A (2017) Solar-energy-driven conversion of biomass to bioethanol: a sustainable approach, *J Mat Chem A*. 5, 15486-15506.

33. Tangy A, **Pulidindi IN**, Gedanken A (2017) Continuous flow biodiesel production from waste cooked oil using microwave irradiation and supported SrO catalyst, *Bioresource Technology*, 224, 333-341.

2016

32. Tangy A, Kumar VB, **Pulidindi IN**, Kinel-Tahan Y, Yehoshua Y, Gedanken A (2016) In situ transesterification of *Chlorella Vulgaris* using carbon dot functionalized

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strontium oxide as heterogeneous catalyst under microwave irradiation, *Energy Fuels*, 30(12), 10602-10610.

31. Kumar VB, **Pulidindi IN**, *Gedanken A* (2016) Development of Ga salt of molybdophosphoric acid for biomass conversion to levulinic Acid, *Energy Fuels*, 30(12), 10583-10591.

30. Kumar VB, **Pulidindi IN**, *Gedanken A* (2016) Ga modified zeolite based solid acid catalyst for levulinic acid production, *ChemistrySelect* 1, 5952 – 5960.

29. Kumar VB, Mishra RK, **Pulidindi IN**, Porat Z, Luong J, *Gedanken A* (2016), Preparation and Catalytic Activity of Thermosensitive Ga₂O₃ Nanorods, *Energy & Fuels*, 30(9), 7419–7427.

28. Tabah B, Varvak A, **Pulidindi IN**, Foran E, Banin B, *Gedanken A* (2016) Production of 1,3-propanediol from glycerol via fermentation by *Saccharomyces cerevisiae*, *Green Chemistry*, 18, 4657-4659.

27. Tangy A, **Pulidindi IN**, *Gedanken A* (2016) SiO₂ beads decorated with SrO nanoparticles for biodiesel production from waste cooking oil using microwave irradiation, *Energy Fuels*, 30 (4), 3151–3160.

26. Klein M, Griess O, **Pulidindi IN**, Perkas N, *Gedanken A* (2016) Bioethanol production from *Ficus religiosa* leaves, *Journal of Environmental Management*, 177, 20–

25. Kumar VB, **Pulidindi IN**, *Gedanken A* (2016) Glucose production from potato peel waste under microwave irradiation, *J Mol Catal A Chem*, 417, 163-167.

24. Tabah B, **Pulidindi IN**, Chitturi VR, Arava LMR, *Gedanken A* (2016) Utilization of solar energy for continuous production of bioethanol for energy applications, *RSC Adv.*, 6, 24203-24209.

23. Kumar VB, **Pulidindi IN**, Yael Kinel, Yaron Yehoshuva, Aharon *Gedanken* (2016) Evaluation of the potential of *Chlorella vulgaris* for bioethanol production, *Energy and Fuels*, 30, 3161–3166.

22. Mishra RK, **Pulidindi IN**, Kaba E, *Gedanken A* (2016), *In situ* formation of carbon dots aid ampicillin sensing. *Analytical Methods*, 8, 2441-2447.

21. Victor A, **Pulidindi IN**, Kim TH, *Gedanken A* (2016) Design of active solid acid catalyst for the optimization of glucose production from *Oryza Sativa* straw, *RSC Adv*, 6, 31-38.

2015

20. Tabah B, **Pulidindi IN**, Chitturi VR, Arava LMR, *Gedanken A* (2015) Solar energy driven simultaneous saccharification and fermentation (SSF) of starch to bioethanol for fuel cell applications, *ChemSusChem*, 8, 3497–3503.

19. Victor A, **Pulidindi IN**, *Gedanken A* (2015) Assessment of Holocellulose for the production of Bioethanol by conserving *Pinus radiata* cones as renewable feedstock, *Journal of Environmental management*, 162, 215-220.

18. Korzen L, **Pulidindi IN**, Israel A, Abelson A, *Gedanken A* (2015) Marine integrated culture of carbohydrate rich *Ulva rigida* for enhanced production of bioethanol, *RSC Adv* 5, 59251-59256.

17. Tabah B, **Pulidindi IN**, *Gedanken A* (2015) A study on fermentation kinetics for accelerated production of bioethanol from glucose, sucrose, and molasses, *Journal of Bioprocessing and Biotechniques*, 5: 232 doi:10.4172/2155-9821.1000232.

16. Kumar VB, **Pulidindi IN**, *Gedanken A* (2015) Synergistic catalytic effect of ZnBr₂-HCl system for levulinic acid production, *RSC Advances*, 5, 11043-11048.

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15. Kumar VB, **Pulidindi IN**, Gedanken A (2015) Selective conversion of starch to glucose using carbon based solid acid catalyst, *Renewable Energy*, 78, 141-145.

14. Klein M, Varvak A, Segal E, Markovsky B, **Pulidindi IN**, Perkas N, Gedanken A (2015) Sonochemical synthesis of HSiW/graphene catalysts for enhanced biomass hydrolysis, *Green Chem.*, 17, 2418-2425.

13. Korzen L, **Pulidindi IN**, Israel A, Abelson A, Gedanken A (2015) Single Step Production of Bioethanol from the Seaweed *Ulva rigida* using Sonication, *RSC Advances*, 5, 16223-16229.

12. Klein M, **Pulidindi IN**, Perkas N, Gedanken A (2015) Heteropoly acid catalyzed hydrolysis of glycogen to glucose, *Biomass Bioenergy*, 76, 61-68.

2014

11. **Pulidindi IN**, Mariana RH, Patricia M, Gedanken A (2014) Isosaccharinic Acid Mediated Fine Chemicals Production from Cellulose, *Journal of Fundamentals of Renewable Energy and Applications*, 4 (2), 143; doi: 10.4172/2090-4541.1000143.

10. Victor A, **Pulidindi IN**, Gedanken A (2014) Levulinic acid production from *Cicer arietinum*, Cotton, *Pinus radiata* and Sugar cane bagasse, *RSC Advances*, 4, 44706-44711.

9. Tzhayik O, **Pulidindi IN**, Gedanken A (2014) Forming nano spherical cellulose containers, *Industrial & Engineering Chemistry Research*, 53, 13871-13880.

8. **Pulidindi IN**, Kimchi BB, Gedanken A (2014) Selective chemical reduction of carbon dioxide to formate using microwave irradiation, *Journal of CO₂ utilization*, 7, 19-22.

7. **Pulidindi IN**, Kimchi BB, Gedanken A (2014) Can cellulose be a sustainable feedstock for Bioethanol production? *Renewable energy*, 71, 77-80. IF 3.3, ISSN No. 0960-1481.

6. **Pulidindi IN**, Gedanken A (2014) Carbon nanoparticles based glucose sensor, *International Journal of Analytical Environmental Chemistry*, 94 (1), 28-35.

2012

5. Klein M, **Pulidindi IN**, Perkas N, Meltzer–Mats E, Gruzman AL, Gedanken A (2012) Direct Production of Glucose from Glycogen under Microwave Irradiation, *RSC Advances*, 2, 7262-7267.

4. **Pulidindi IN**, Gedanken A, Schwarz R, Sendersky A (2012) Mild sonication accelerates ethanol production by yeast fermentation, *Energy Fuels*, 26, 2352-2356.

2010

3. V. Prakash, **P. Indra Neel** and B. Viswanathan (2010) Bio analogous electrode for oxygen reduction reaction, *Indian Journal of Chemistry*, 49(A), pp 1441-1443.

2009

2. B. Viswanathan, **P. Indra Neel** and T. K. Varadarajan (2009) Development of carbon materials for energy and environmental applications, *Catalysis Surveys from Asia*, 13, 164-183.

1. R Mahalakshmy, **P. Indra Neel** and B. Viswanathan (2009) Surface Functionalities of nitric acid treated carbon- A density functional theory based vibrational analysis, *Indian Journal of Chemistry*, 48(A), pp 352-356.

4. Books/Book chapters

2021

14. **Pulidindi IN**, Gedanken A (2021) Solar intervention in bioenergy, Chapter 33 Hand book of Biofuels, Sanjay Sahay (Editor), Academic press, ISBN: 9780128228104.

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13. Tangy A, **Pulidindi IN**, Shviro M (2021) Recent advances in electrocatalysts for hydrogen oxidation reaction (HOR) in alkaline electrolytes, chapter in the Wiley book "Electrocatalysis for Fuel Cells: Methods, Modeling, and Applications". Vito di Noto (Editor).

2020

12. **Pulidindi IN**, Aharon Gedanken (2020) The catalytic production of biofuels (Biodiesel and Bioethanol) using sonochemical, microwave and mechanical methods, chapter in the Elsevier book, "Non-traditional Activation methods in green and sustainable applications: Microwaves, ultrasound, photo, electro and mechanochemistry and high hydrostatic pressure." Bela Torok and Christian Schaefer (Editors), ISBN: 9780128190098, 1st edition.

2019

11. **Pulidindi IN**, Gedanken A(2019) *Can Biofuels Alleviate the Energy and Environmental Crisis?*, Book, Nova Science Publishers, Inc., New York, ISBN: 978-1-53615-050-6.

2017

10. **Pulidindi IN**, Korzen L, Tabah B, Victor A, Israel A, Abelson A, Gedanken A (2017) Potential Applications of *Ulva Rigida* for Biofuel and Biochemical Production. In Biology Research Summaries (With Biographical Sketches) vol. 2; B. Olson, Ed.; Nova Science Publishers Inc.: New York, Ch. 198. ISBN: 978-1-53612-444-6.

9. **Pulidindi IN**, Korzen L, Tabah B, Victor A, Israel A, Abelson A, Gedanken A (2017) Potential applications of *Ulva rigida* for Biofuels and Biochemicals Production in the book, Seaweeds: Biodiversity, Environmental Chemistry and Ecological Impacts, Book chapter, Nova Science Publishers, Inc. 2017, ISBN: 978-1-53611-895-7.

8. Tabaha B, **Pulidindi IN**, Chitturi VR, Arava LMR, Gedanken A, Solar-energy driven bioethanol production from carbohydrates for transportation applications, in Solar Energy: Systems, Performance and Recent Developments, Book chapter, Nova Science Publishers, Inc. 2017. ISBN 978-1-53610-408-0 (e-book).

2015

7. **Pulidindi IN**, Aharon Gedanken (2015) Employing novel techniques (microwave and sonochemistry) in the synthesis of biodiesel and bioethanol, Chapter 6, p. 159-188, in Springer Book Series - Production of Biofuels and Chemicals: Ultrasound, Editors: Zhen Fang, Liang-shih Fan, John R. Grace, Yonghao Ni, Norman R. Scott, Richard L. Smith, Jr., (Published). Citations: 6, ISBN No. 978-94-017-9624-8

2010

6. Spontaneous and non-spontaneous reactions, Chapter 10, Selected Topics in Chemistry, 2010, available at <http://nccr.iitm.ac.in>

2009

5. B. Viswanathan, **P. Indra Neel** and T. K. Varadarajan, Methods of activation and specific applications of carbon materials, E book, 2009, available at <http://nccr.iitm.ac.in>; Citations: 152

4. Pollution control in energy conversion processes, Chapter – 2, Pollution control strategies – A Chemists perspective, 2009, available at <http://nccr.iitm.ac.in>

2008

3. The role of synthesis in materials technology, Chapter 10, Synthetic strategies in Chemistry, 2008, available at <http://nccr.iitm.ac.in>

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2007

2. Nuclear energy options, Chapter 9, Frontiers in Chemistry, 2007, available at <http://nccr.iitm.ac.in>

2006

1. Coal, Chapter 4, An introduction to energy sources, 2006, available at <http://nccr.iitm.ac.in>

5. Papers presented in national/international conferences

2017

30. **IN PULIDINDI, JS KIM, TH KIM**, Production of levulinic acid from agricultural wastes using green liquor and hydrochloric acid. 한국생물공학회 학술대회, 318-318

2016

29. Rahul Kumar Mishra, **Indra Neel Pulidindi**, Eihab Kabha, Aharon Gedanken, In situ formation of carbon dots aids ampicillin sensing, NanoIsrael 2016, Conference and Exhibition, The Smolarz Auditorium, Tel Aviv University, Tel Aviv, Israel, 22-23 February, 2016.

28. Amudhavalli Victor, **Indra Neel Pulidindi**, Aharon Gedanken, Selective production of glucose from rice straw using solid acid catalyst under microwave irradiation, NanoIsrael 2016, Conference and Exhibition, The Smolarz Auditorium, Tel Aviv University, Tel Aviv, Israel, 22-23 February, 2016.

27. Betina Tabah, **Indra Neel Pulidindi**, Aharon Gedanken, Solar energy driven solid state fermentation for continuous flow bioethanol production, NanoIsrael 2016, Conference and Exhibition, The Smolarz Auditorium, Tel Aviv University, Tel Aviv, Israel, 22-23 February, 2016.

26. Vijay Bhooshan Kumar, **Indra Neel Pulidindi**, Aharon Gedanken, Ga modified zeolite based solid acid catalyst for levulinic acid production, NanoIsrael 2016, Conference and Exhibition, The Smolarz Auditorium, Tel Aviv University, Tel Aviv, Israel, 22-23 February, 2016.

25. **Indra Neel Pulidindi** & Aharon Gedanken, Recent Advances in the Production of Bioethanol - a Renewable and Alternate Fuel, NanoIsrael 2016, Conference and Exhibition, The Smolarz Auditorium, Tel Aviv University, Tel Aviv, Israel, 22-23 February, 2016.

2015

24. **Indra Neel Pulidindi** & Aharon Gedanken, Bioethanol production from marine and terrestrial biomass using microwave and solar radiation, Israel-Canada workshop on advanced biofuels, 8-9th November 2015.

23. Betina Tabah, **Indra Neel Pulidindi**, Aharon Gedanken, Solar energy driven simultaneous saccharification and fermentation (SSF) of starch to bioethanol, EPScon Conference on Environmental, Earth, and Planetary Sciences, May 12, 2015, Rehovot, Israel.

22. Betina Tabah, **Indra Neel Pulidindi**, Aharon Gedanken, Solar energy driven simultaneous saccharification and fermentation (SSF) of starch to bioethanol, IVS-MRS Student Meeting, April 28, 2015, Tel Aviv, Israel.

21. Betina Tabah, **Indra Neel Pulidindi**, Aharon Gedanken, Can biofuel cells be a sustainable energy conversion device? The 80th Annual Meeting of the Israel Chemical Society, 17-18th February 2015, David Intercontinental Hotel, Tel-Aviv, Israel.

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20. Amudhavalli Victor, **Indra Neel Pulidindi** and Aharon Gedanken, Lignin based synthesis of MoO₂-carbon composite for electrochemical device applications, The 80th Annual Meeting of the Israel Chemical Society, 17-18th February 2015, David Intercontinental Hotel, Tel-Aviv, Israel.

19. Miri Klein, **Indra Neel Pulidindi**, Nina Perkas and Aharon Gedanken, Enhancement of Biomass Hydrolysis by HSiW/Graphene Catalyst, The 80th Annual Meeting of the Israel Chemical Society, 17-18th February 2015, David Intercontinental Hotel, Tel-Aviv, Israel.

18. Vijay Bhooshan Kumar, **Indra Neel Pulidindi**, Aharon Gedanken, Biochemicals production from Biomass, The 80th Annual Meeting of the Israel Chemical Society, 17-18th February 2015, David Intercontinental Hotel, Tel-Aviv, Israel.

17. Leor Korzen, **Indra Neel Pulidindi**, Alvaro Israel, Avigdor Abelson and Aharon Gedanken, Can marine macro algae be a potential feedstock for bioethanol production? The 80th Annual Meeting of the Israel Chemical Society, 17-18th February 2015, David Intercontinental Hotel, Tel-Aviv, Israel.

2014

16. **Indra Neel Pulidindi** and Aharon Gedanken, Can CO₂ be an organic raw material for biorefinery? 6th National Graduate Student Symposium in Organic Chemistry, Oct. 21, 2014, Bar Ilan University, Ramat Gan, Israel.

15. Amudhavalli Victor, **Indra Neel Pulidindi** and Aharon Gedanken, Unique structural advantage in levulinic acid makes it a key platform chemical, 6th National Graduate Student Symposium in Organic Chemistry, Oct. 21, 2014, Bar Ilan University, Ramat Gan Israel.

14. Betina Tabah, **Indra Neel Pulidindi**, Aharon Gedanken, Bioethanol Production from Renewable Organic feedstock, 6th National Graduate Student Symposium in Organic Chemistry, Oct. 21., 2014, Bar Ilan University, Ramat Gan Israel.

13. **Indra Neel Pulidindi** and Aharon Gedanken, Glucose sensor based on Carbon nanoparticles, Nano Israel, March 24-25, 2014, Tel Aviv, Israel.

12. Miri Klein, **Indra Neel Pulidindi**, Nina Perkas and Aharon Gedanken, Graphene supported silicotungstic acid catalyzed glycogen hydrolysis, Nano Israel, March 24-25, 2014, Tel Aviv, Israel.

11. Betina Tabah, **Indra Neel Pulidindi** and Aharon Gedanken, Solar energy based solid state fermentation for bioethanol production, Nano Israel, March 24-25, 2014, Tel Aviv, Israel.

10. Vijay Bhooshan Kumar, **Indra Neel Pulidindi**, Aharon Gedanken, Heteropoly acid catalyzed hydrolysis of starch to glucose, Nano Israel, March 24-25, 2014, Tel Aviv, Israel.

2013

9. **Indra Neel Pulidindi** and Aharon Gedanken, Cicer arietinum and *pinus radiata* as renewable carbohydrate sources for bioethanol production, EuroCarb 17, 17th European Carbohydrate symposium, July 7-11, 2013, Tel-Aviv, Israel.

8. Betina Tabah, **Indra Neel Pulidindi**, Aharon Gedanken, Accelerated production of bioethanol using ultraturrax, EuroCarb 17, 17th European Carbohydrate symposium, July 7-11, 2013, Tel-Aviv, Israel.

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7. Miri Klein, **Indra Neel Pulidindi**, Nina Perkas, Aharon Gedanken, Can Glycogen be a Renewable Feedstock for Glucose? EuroCarb 17, 17th European Carbohydrate symposium, July 7-11, **2013**, Tel-Aviv, Israel.

2010

6. **Indra Neel Pulidindi**, B. Viswanathan and T. K. Varadarajan (2010) Methanol electro oxidation on activated carbon supported Pt catalysts in alkaline medium, Indo-Hungarian workshop on “Future frontiers in Catalysis”, 16-18th February, **2010**, IIT Madras, Chennai.

2008

5. Selvavathi V, Meenakshisundaram A, Sairam B, **Indra Neel Pulidindi**, Rajasekaran M and Viswanathan B, Adsorptive desulphurization of diesel by modified carbons, 6th International Symposium on Fuels and Lubricants, ISFL-2008, New Delhi, 2008, 116.

2007

3 **Indra Neel Pulidindi**, B. Viswanathan, T. K. Varadarajan Hydrogenation behaviour of W/C systems” 18th National Symposium on Catalysis, April 16-18, **2007**, IIP Dehradun, India

2005

3. **Indra Neel Pulidindi**, B. Viswanathan, T. K. Varadarajan, Nanoclusters of polyoxometalates dispersed on SBA-1 mesoporous silica for the production of gasoline additives, National symposium and conference on Solid state chemistry, 1-3rd December, 2005, ISCAS-2005, University of Goa, Goa, India

2. **Indra Neel Pulidindi**, B. Viswanathan, T. K. Varadarajan, Spectroscopic analysis of supported heteropoly acid catalysts, International Conference on Spectrophysics, INCONS-2005, 9-12th, February, 2005, Pachaiyappa’s college, Chennai, India.

1. **Indra Neel Pulidindi**, B. Viswanathan, T. K. Varadarajan, Preparation, Characterization and Evaluation of Catalytic Activity of dodeca tungsto phosphoric acid (HPW) and dodeca tungstosilicic acid (HSiW) supported on SBA-I mesoporous silica” 17th National symposium on Catalysis, 18-20th January, **2005**, CSMCRI, Bhavnagar, Gujarat, India.

6. Invited Lectures

6. Biofuels and biochemicals from biomass and Carbon fiber reinforced composites, Lecture dated 28/1/2021, New Vistas in Chemical Research, 27-28th January 2021, at D G Vaishnav College, Department of Chemistry, Chennai. Delivered the lecture online via Google meet.

5. Biofuels and biochemicals from biomass and carbon fiber reinforced composites, Lecture dated 9/6/2020, International Chemistry Webiner-2020, Rethink, Restructure, Revive, and Recycle: A post covid perspective, June 9-15, 2020 at Department of Chemistry, Ewing Christian College, Prayagraj. Delivered the lecture online via zoom app.

4. Catalysis for biomass conversion to biofuels and biochemicals, Lecture dated 25th April, 2019, Professor Xinling Wang’s research group, Advanced materials for Aeronautics and Aerospace, Department of Chemical Engineering and Chemistry, Shanghai Jiao Tong University, Shanghai, China.

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3. Biofuels for the alleviation of energy and environmental crises, Lecture dated 5th December, 2018, 19th Catalysis orientation programme for research scholars, 1st Nov. 2018-17th Dec. 2018, NCCR, IIT Madras.

2. Application of Nanomaterials as catalysts and sensors, Lecture dated 16th October 2018, Webinar session for refreshers course for faculty members on “Nanoscience and its applications in Chemistry, Physics and Life sciences, 4th October – 24th October, 2018, Modern college of arts, science and commerce, Sivajinagar, Pune, India.

1. Renewable energy options, Lecture dated 5th April, 2018, Invited to deliver the lecture in connection with recruitment for Associate professor position, Multimedia learning center, Sri Sathya Sai Institute of Higher Learning, Anantapur, AP, India.

7. Technomanagemental skills:

- Guidance to students and researcher scholars in their academic research projects
- Drafting research proposals, winning the grants from Israel Science foundation, ISF and Israel-Korea Scientific Research Cooperation; and successfully providing the promised deliverables
- Experience of using conventional and advanced analytical methods to solve critical scientific problems

8. Research and teaching interests

I have 20 years of working experience in a Chemistry laboratory ever since I have started my doctoral studies at IIT Madras on 3rd July, 2002. During my Ph D., I have trained graduate and post-graduate students in performing their regular laboratory experiments including handling various instruments of analysis in a Chemistry laboratory in addition to my research. As a postdoctoral researcher in Israel from 2nd September, 2010, I have been supervising several Ph D and post graduate students in their research work. This has given me the needed expertise for building a research laboratory and training research students at various levels apart from carrying out my own research independently.

Energy crisis, environmental deterioration and need for better materials are the three major problems human society is currently facing. My research focus would be on developing alternate renewable energy sources as well as new materials. Towards, realization of this goal, it is imperative that one should obviously utilize the solar energy which is abundantly available and also devise strategies to utilize CO₂ as organic raw material for the production of fuels and chemicals. Other direction towards energy security is the effective utilization of biomass for the production of fuels (biodiesel and bioethanol). Essentially, the emphasis of my research activities would be on utilization of solar energy, carbon dioxide and biomass. Of course, the science of catalysis was used extensively. My research was devoted to the conversion of marine macro algae and microalgae to bioethanol. In addition to algae, a variety of terrestrial biomass, which are an agricultural and environmental waste, were converted to useful and valuable biofuels and biochemicals using novel methods like sonication, microwave irradiation and solar radiation. CO₂ evolution by the combustion to fuels is another issue facing the mankind. My research passion is to utilize CO₂ as an organic raw material for biochemical production and towards this some promising results obtained were published. Related studies would be pursued in future as well, especially in the direction of photocatalytic means of converting CO₂ to fuels. Mankind need to learn and mimic nature for sustainability and well-being. My scientific pursuits would be understanding and mimicking nature by utilizing natural resources and there by trying to solve societal

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problems. In addition to the realms of energy and environment, my research emphasis would also be on developing sensors bearing significance to health sector. Currently, I am extensively working on understanding the interface of carbon fiber reinforced plastics. My current research focus is on characterizing the interface of carbon fiber reinforced plastics (CFRPs) that has revolutionized almost all spheres of human activity including health, energy, environment, defence, space, marine, sports and many others. Wherever light weight and strong materials are required one can think of CFRPs. My research studies on the above pursuits have resulted in the publication of 42 research articles in reputed national and international journals, granting of 1 patent, filing of 5 patent applications and publication of 12 book chapters, 1 book and an e-book.

Teaching is one of the vital forces in building a nation. Building students is in other words building a strong nation. Conventional chemical sciences are unavoidable. So, my focus would be on training the students in the fundamentals of Kinetics, thermodynamics, Electron transfer reactions and mechanisms, Catalysis and Energy devices, Analytical methods, and Advanced solid state materials. In addition, special lectures will be delivered on Nanomaterials and applications, Industrial chemical processes, Biofuels and New materials like CFRPs.

From time to time, based on the state of the art research, the syllabus and the courses offered will be redesigned. Frequent lectures on recent technological breakthroughs would be organized to make the students updated with the frontiers of science and technology. An ideal teacher generates interest in students towards the subject being taught through lively and relevant examples. Such an interest serves as the driving force in the students to comprehend, assimilate and utilize the knowledge productively for building their career as responsible citizens.

9. Doctoral research work

Ph D thesis: Development and exploitation of carbon materials from plant sources

Ph D synopsis: Activated carbon materials were prepared from unconventional natural sources like *Calotropis gigantea*, *Borassus flabellifera*, *Limonea acidissima* and *Ipomoea carnea* and were thoroughly characterized by a variety of physicochemical techniques. Carbon materials have been used for energy (electrode fabrication for fuel cells, catalyst design for the production of gasoline additives) and environmental (sorber for diesel desulphurization and sorption of mercury and some dyes from water) applications.

10. Relevant courses undertaken during Ph D and M Sc studies

Ph. D.: Catalysis – Principles and applications, Chemistry of Novel Materials, Solid State Chemistry, Spectroscopy – Applications in Organic and Inorganic Chemistry, Structure and Dynamics of Electrochemical Interfaces, Organic Photo Chemistry.

M. Sc.: General Chemistry, Inorganic Chemistry, Organic Chemistry, Physical Chemistry, Nuclear Theory and Nuclear Reactions, Nuclear Reactors and Process Chemistry of Reactor Materials, Separation Methods and Applied Radioactivity, and Radiation Chemistry and Detection Techniques.

11. Research projects completed successfully

S. No.	Title of the project	Funding agency
1	Solar-aided conversion of micro and macro algae to bioethanol and chemicals	Israel Ministry of national Infrastructures, Energy and water resources through grant No. 3-13442; 3 years from 1.1.2017 to

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		31.12.2019, 246, 619 USD
2	Using macro - algae as a source of biofuel : Developing methods for intensive and effective production of ethanol	Ministry of Science and Technology, Israel, 3 years, 300,000 USD
3	Novel Methods of the Conversion of Biomass to Bioethanol	Israel Science Foundation, ISF, 4 years, 2012-2016, 440, 500 USD
4	Cellulose degradation to sugars and fine chemicals	Ministry of Science and Technology, Israel-Korea Scientific Research Cooperation, 2 years, 2012-2014, 50,000 USD (Rs 33,64, 250),
5	Development of polyoxometallate based membranes for fuel cell applications	MNES, Ministry of Non Renewable Energy Sources, India.2 years, 30, 00, 000
6	Development of Electrode Materials for Fuel Cell Applications	Columbian Chemicals Company (CCC) Atlanta, Completed successfully, 1 year, 20, 00, 000
7	Adsorptive Desulphurization of Diesel	The Chennai Petroleum Corporation Limited (CPCL) India.2 years, Rs. 30, 00, 000
8	Exploitation of Supported Heteropoly Acids for the Production of Fine Chemicals	Council of Scientific and Industrial Research (CSIR), India, 3 years, Rs. 20, 00, 000

12. Research guidance

Ph.D. theses:

S. No.	Title of thesis	Name of the student	Year of completion
1	Can biomass be a sustainable feedstock for biorefinery?	Dr Amudavalli Victor	2017 Ph D awarded
2	Novel methods for the conversion of biomass to bioethanol	Dr Betina Tabah	2018 Ph D awarded
3	Evaluation of economic and technological feasibility for the conversion of marine algae to bioethanol	Dr Leor Korzen	2016 Ph D awarded
4	The Direct Production of Glucose from Glycogen under Microwave, Sonochemical and Hydrothermal heating using Different Catalysts	Dr Miri Klein	2015 Ph D awarded

M. Tech/ M. Sc theses:

S. No.	Title of thesis	Name of the student	Year of completion
1	Microwave assisted selective hydrolysis of cellulose to glucose	Mr Baruchi B Kimchi	May, 2015

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2	Exploitation of activated carbon materials for the sorption of mercury	Mr Amitava Srimany	May, 2010
3	Alkylation of phenol on supported solid acid catalyst	Ms Mita Rong	April, 2007
4	Carbon supported gold catalysts for Fuel cell application	Mrs Subbiah Divya	May, 2010

13. References

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14. Declaration

I hereby declare that all the above information is true to my knowledge.

Yours Sincerely
P. Indra Neel
(P. Indra Neel)

Date & Place: **March, 2022**, Chennai, India.