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National Centre for Catalysis Research
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Indian Institute of Technology-Madras
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EDUCATION

Course / Program	Institution / University	% Marks / CGPA	Passing Year
Ph.D. (Chemistry) [†]	National Centre for Catalysis Research (NCCR) & Department of Chemistry, IIT-Madras, Chennai	8.0 [‡]	2021
PGDCAQM (Chemical Analysis & Quality Management)	Centre for Distance Education - University of Hyderabad, Hyderabad	61.0	2009
M.Sc. (Physical Chemistry)	M.V.R. P.G. College (Affiliated to Andhra University), Visakhapatnam	73.2	2007
B.Sc. (M.P.C.)	Sir C.R.R. College (Affiliated to Andhra University), Eluru	65.1	2005

[†]Thesis Title: ORDERED MESOPOROUS PRISTINE AND NITROGEN-DOPED CARBONS: SYNTHESIS CHARACTERIZATION AND APPLICATIONS
Supervisor: Professor P. SELVAM, IIT-Madras. [‡] Cumulative CGPA for the course works out of 10.

WORK EXPERIENCE

- ✓ March 2021- Till date: Assistant Professor (Guest), Adikavi Nannaya University-Tadepalligudem Campus, West Godavari, Andhra Pradesh
- ✓ June 2009-April 2010: Teaching Assistant in Dept. of Chemistry, Dr. V. S. Krishna Govt. P.G. College, Visakhapatnam, Andhra Pradesh
- ✓ July 2008- May 2009: Lecturer in Dept. of Chemistry, Konatala P. G. College, Anakapalle, Andhra Pradesh

RESEARCH INTERESTS AND TECHNICAL EXPERTISE

- Synthesis and characterization of nano-materials, porous materials (ordered nanoporous carbons, silicates, metal oxides, metallosilicates, composite materials, nanoparticle supported materials) using sol-gel synthesis and hydrothermal methods.
- Application of materials in Gas Storage, Fuel Cells, Batteries, Heterogeneous/Electro/Photo-Catalysis.
- Strong background in Chemistry, Catalysis, Material and Surface Science.
- Hands-on-experience in Solid State Material Characterization Techniques such as HR-TEM, HPVA, N₂ porosimeter, FT-Raman, Temperature programmed techniques (TPD & TPR), XPS, NMR, XRD, XRF, SEM, FT-IR spectroscopy, Elemental Analyzers, TG-DTA, UV-Visible absorption spectroscopy.
- Good knowledge in chemical data interpreting
- Product analysis using gas chromatography (GC) and high-performance liquid chromatography (HPLC).
- Well versed with MS office and chemistry related software (Origin/Fityk/CASA/ChemBioOffice/ End Note).

SCHOLASTIC ACHIEVEMENTS

- Qualified for CSIR – JRF (Rank 191) & GATE; All India Rank 476. GATE Score 434. Percentile 94.
- Qualified in Praveena Poorvardha examination conducted by Dakshin Bharat Hindi Prachar Sabha.
- Served as CQMS (Company Quarter Master Sergeant) in NCC (National Cadet Corps) and obtained ‘A’ Grade in ‘C’ certificate examination.
- Acted as volunteer for all symposiums, conferences and workshops held by NCCR, Department of Chemistry, during 2010 to 2019.

RESEARCH PAPERS

1. **T.V.R. Mohan**, S. Palla, B. Kuppan, N.S. Kaisare and P. Selvam (2018). Hydrogen Sorption Characteristics of Ordered Mesoporous Carbons: Experimental and Modeling View Point. *Journal of Chemical & Engineering Data*, **63**, 4543-4551. **Cover Feature Article.**
2. **T.V.R. Mohan**, B. Kuppan and P. Selvam (2018). Ordered Nanostructured Carbons, NCCR-41 and CMK-3: Synthesis, Characterization, and Hydrogen Sorption Studies. *Catalysis in Green Chemistry and Engineering*, **1**, 235-246.
3. S. Khan, R.P. Raj, **T.V.R. Mohan**, S. Bhuvanewari, U.V. Varadaraju and P. Selvam (2019). Electrochemical Performance of Nano-LiFePO₄ Embedded Ordered Mesoporous Nitrogenous Carbon Composite as Cathode Material for Li-ion Battery Applications. *Journal of Electroanalytical Chemistry*, **848**, ARTN 113242.
4. S. Khan, R.P. Raj, **T.V.R. Mohan**, and P. Selvam (2020). Electrochemical Performance of Nano-Sized LiFePO₄ Embedded 3D-Cubic Ordered Mesoporous Carbons and Nitrogenous Carbon. *RSC Advances*, **10**, 30406-30414.
5. G. Shivudu, **T.V.R. Mohan**, K. Chandraraj and P. Selvam (2021). Xylooligosaccharides production from lignocellulosic biomass: Equilibrium kinetics and thermodynamic studies of endo-1,4-β-D-xylanase adsorbed onto periodic mesostructured materials. *Materials Science for Energy Technologies* (Accepted) doi.org/10.1016/j.mset.2021.08.004.

PATENTS

1. P. Selvam, M. Sasidharan, V.T. Bhat, K. Namitharan, **T.V.R. Mohan**, M. Nallagangula and K. Kala, Method for Using Bulk and Porous N-containing/N-doped Carbon and Carbon Nitrides as Heterogeneous Catalysts for Borrowing Hydrogen and Dehydrogenation Reactions. *International Patent No. WO/2020/016908*.
2. P. Selvam, M. Sasidharan, V.T. Bhat, K. Namitharan, **T.V.R. Mohan**, M. Nallagangula and K. Kala, Method for Using Bulk and Porous N-containing/N-doped Carbon and Carbon Nitrides as Heterogeneous Catalysts for Borrowing Hydrogen and Dehydrogenation Reactions. *Indian Patent Application No. 201841026841*.
3. P. Selvam, S. Khan, R.P. Raj, **T.V.R. Mohan** and S. Bhuvanewari, Novel Ordered Mesoporous LiFePO₄/N-doped Carbon (LIP/MNC-31) Composite as Superior Cathode Material for High Performance Li-ion Batteries. *Indian Patent Application No. 201841034920*, Dated 17.09.2018.
4. P. Selvam, **T.V.R. Mohan**, Application of metal-free ordered mesoporous nitrogenous carbons as electrocatalysts for oxygen reduction reaction and thereof, *Indian Patent Application* (2021): IDF-2122.

1. **T.V.R. Mohan**, M. Nallagangula, K. Kala, K. Namitharan, V.T. Bhat, Carlos E. H.-Tamargo, Nora H. De Leeuw, M. Sasidharan and P. Selvam (2021). Pyridinic-nitrogen containing ordered mesoporous carbons as NAD(P)H mimics for borrowing hydrogen reactions (manuscript under review).
2. **T.V.R. Mohan**, S. Palla, N.S. Kaisare and P. Selvam (2021). High Pressure Carbon Dioxide Sorption Characteristics of Pristine and N-doped Mesoporous Carbons: Experimental and Modeling Viewpoint.
3. **T.V.R. Mohan**, R.P. Raj, Carlos E. Hernandez-Tamargo, and P. Selvam (2021). Study of Pristine and N-doped Metal-free Ordered Mesoporous Carbons for Uncovering Parameters for Better ORR Performance.
4. **T.V.R. Mohan**, R.P. Raj, B. Kuppan and P. Selvam (2021). Platinum on Carbon Catalysts for Oxygen Reduction Reaction: Influence of Carbon Support and Platinum Loading.
5. V. Surya kumar, N. Sarvanan, **T.V.R. Mohan**, R.P. Raj, and P. Selvam (2021). Ordered Mesoporous Titania/Carbon Composite for Improved Photocatalytic Degradation of Famotidine and its Intermediates.
6. R.A. Singh, **T.V.R. Mohan**, J. Madhavan, K.R. Krishnamurthy, and B. Viswanathan (2021). Titania polymorphs and textural properties steers the hydrogenation pathways of furfural over nickel catalysts.

PAPERS/POSTERS PRESENTED

1. **T.V.R. Mohan** and P. Selvam (2013). Mesoporous silica-templated synthesis of ordered mesoporous copper oxide. *Indo-US Symposium on Molecular Materials*, Indian Institute of Science, Bengaluru, July 15-17, PP-47.
2. **T.V.R. Mohan** and P. Selvam (2013). Mesoporous silica-templated synthesis of ordered mesoporous copper oxide. *ChiS-2013*, IIT-Madras, Chennai, August 21, PP-29.
3. **T.V.R. Mohan** and P. Selvam (2014). Mesoporous silica-templated synthesis of ordered mesoporous copper oxide. *16th National Workshop on Catalysis for Sustainable Development*, Nagpur, February 4-6, PP-33.
4. **T.V.R. Mohan** and P. Selvam (2016). Hydrogen sorption characteristics of nitrogen-containing ordered mesoporous carbons. *2nd National Conference on Materials for Energy Conversion and Storage (MECS-2016)*, Pondicherry, March 11-13, PP-84.
5. P. Selvam and **T.V.R. Mohan** (2016). Nitrogen-containing ordered mesoporous carbons as metal-free catalysts for oxygen reduction reaction. *World Hydrogen Energy Conference (WHEC-2016)*, Zaragoza, June 13-16, p-47.
6. **T.V.R. Mohan** and P. Selvam (2016). Nitrogen-containing ordered mesoporous carbon as promising metal-free electrocatalyst for oxygen reduction reaction. *ChiS-2016*, Chennai, August 22.
7. **T.V.R. Mohan** and P. Selvam (2016). Nitrogen-containing ordered mesoporous carbons as metal-free catalysts for oxygen reduction reaction in acidic medium. *RSC Symposium on Heterogeneous Catalysis and Sustainable Chemistry*, Tiruchirappalli, November 5.
8. P. Selvam and **T.V.R. Mohan** (2018). Metal-free mesoporous nitrogenous carbon electrocatalyst for oxygen reduction reaction in alkaline media. *Asia-Pacific Conference on Energy Storage and Conversion (APE-2018)*, Singapore, July 18-20.
9. P. Selvam and **T.V.R. Mohan** (2018). Experimental and modelling assessments of hydrogen in hexagonal ordered mesoporous carbons. *Advanced Energy Materials (AEM-2018)*, University of Surrey, England, September 10-12.
10. P. Selvam and **T.V.R. Mohan** (2019). Experimental and modelling assessment of hydrogen adsorption in cubic ordered mesoporous carbons. *13th International Conference on Fundamentals of Adsorption (FOA-13)*, Cairns, May 26-31.

PERSONAL DETAILS

Name : Dr. T.V. Rama Mohan
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REFERENCES

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