

Scientific publications/Peer-reviewed publications:

1. K.Venkata Ramana, AR Subrahmanyam, M Ravinder Reddy, **V Madhusudhana Reddy** “Structural, Optical, Thermal and DC Conductivity of LiClO₄ and Nano SiO₂ on PVDF+PEG Polymer Blend System” *ECS Journal of Solid State Science and Technology*, 14 097001, 2025. <https://doi.org/10.1149/2162-8777/ac020b> (**Scopus Indexed, Journal Q3**)
2. Reddy, M., Gundla, R., Reddy, **V.Madhusudhana Reddy**, Kundana, N. “Effect Of Al₂O₃ Nanoparticle On The Characteristic Parameters Of PvdF-Co-Hfp Based Mg 2+ Conducting Polymer Electrolyte Membranes.” *Oriental Journal Of Chemistry*, 40(2). (2024) <https://doi.org/10.13005/ojc/400237> (**WOS Indexed**)
3. Kundana, N., Reddy, **V. Madhusudhana Reddy.**, Venkatapathy, M., Neeraja, V., Jeedi, V. R., & Ganta, K. K.. “Impact of Zirconium Oxide Nanopowder on Dielectric Response and Morphological Studies of Magnesium-Based PVDF-HFP/PMMA Nanocomposite Polymer Electrolyte Systems.” *BioNanoScience*, 1-13. (2024) <https://doi.org/10.1007/s12668-024-01381-5> (**Scopus Indexed- Springer Nature-Q2**)
4. N. Kundana, M. Venkatapathy, V. Neeraja, Chandra Sekhar Espenti, Venkatramana Jeedi and **V. Madhusudhana Reddy** “Effect of Zr-Nanofiller On Structural And Thermal Properties Of PVDF-Co-HFP Porous Polymer Electrolyte Membranes Doped With Mg ²⁺Ions” *Asian Journal of Chemistry*; Vol. 35, No. 1 (2023), 99-108, ISSN: 0975-427X,
DOI: <https://doi.org/10.14233/ajchem.2023.26893> (**Scopus Indexed**)
5. N. Kundana, M. Venkatapathy, V. Neeraja, Chandra Sekhar Espenti and **V. Madhusudhana Reddy** “Preparation And Characterization Of Solid Polymer Electrolyte Membranes Based On PvdF-Co-Hfp Polymer And MgTf₃ As A Dopant” *Rasayan Journal of Chemistry*, Vol. 15, No. 4, pg 2359-2365, October – December, 2022, ISSN: 0974-1496, e-ISSN: 0976-0083;
DOI: <http://doi.org/10.31788/RJC.2022.1548015> (**Scopus Indexed**)
6. N. Kundana, M. Venkatapathy, V. Neeraja, Chandra Sekhar Espenti, **V. Madhusudhana Reddy**, Venkatramana Jeedi “Effect of PMMA on PVDF-co-HFP/MgTf₃ Polymer Composite with Improved Ionic Conductivity, Thermal and Structural Properties” *Oriental Journal Of Chemistry* Vol. 38, No.(5):2022, ISSN: 0970-020 X; DOI: <http://dx.doi.org/10.13005/ojc/380508> (**WOS indexed**)
7. N. Kundana, M. Venkatapathy, V. Neeraja, Chandra Sekhar Espenti , **V. Madhusudhana Reddy** “Development of ion conducting polymer electrolyte membranes based on polymer blend PMMA/PVDF-co-HFP and the Mg-salt with improved electrical, thermal and structural properties.” *NeuroQuantology*, June 2022, Volume 20, Issue 6, Page 5890-

5897;eISSN 1303-5150; [DOI:10.14704/nq.2022.20.6.NQ22594](https://doi.org/10.14704/nq.2022.20.6.NQ22594) (Scopus Indexed)

8. K. VenkataRamana, M. Chandra Shekar and **V. Madhusudhana Reddy** “Characterization of Blended Polymer Electrolyte thin Films Based on PVDF+PEG Doped with Nano SiO₂” Oriental Journal Of Chemistry Vol. 38, No.(4):2022, ISSN: 0970-020 X; DOI: <http://dx.doi.org/10.13005/ojc/380412> (WOS indexed)
9. K. Venkata Ramana, M. Chandra Shekar, **V. Madhusudhana Reddy**, A. R. Subrahmanyam, M. Ravindar Reddy and T. Ramesh Reddy “Effect of Li Electrolyte on Structural, Morphological and Thermal Properties of Polyvinylidene fluoride (PVDF) and Polyethylene glycol (PEG) Polymer blend Thin Films” Oriental Journal Of Chemistry, Vol. 38, No.(2):2022,ISSN: 0970-020 X. DOI: <http://dx.doi.org/10.13005/ojc/380216>(WOS indexed)
10. K. VenkataRamana, A.R. Subrahmanyam, B. Bhanu Prasad, M. Ravindar Reddy, **V. Madhusudhana Reddy**, M. Chandra Shekar “Transition Studies Of Polyvinylidene Fluoride(PVDF) And Polyethylene Glycol(PEG) Complexation Of Lithium Perchlorate(LiClO₄)” International Journal Of Scientific & Technology Research, Volume 9, Issue 01, January 2020; ISSN: 2277-8616 (Scopus Indexed)
<http://www.ijstr.org/research-paper-publishing.php?month=jan2020>
11. **V.Madhusudhana Reddy**, N Kundana, T.Sreekanth, “Fabrication of Gas Sensor By Using (PEO+KNO₃+Nano Al₂O₃) Composite Polymer Electrolyte” International Journal for Science and Research in Technology(IJSART), Vol 4. No4. April 2018. ISSN: 2395-1052. (UGC Care approved Journal).
<https://ijsart.com/Home/IssueDetail/23088>
12. **V.Madhusudhana Reddy**, N Kundana, T.Sreekanth, “Investigation of XRD and transport properties of (PEO + KNO₃ + Nano Al₂O₃) composite polymer electrolytes” Materials Science Research India, Vol.15 , No 1 , April 2018. ISSN: 0973-3469, UGC Care approved Journal S No: 48488.
<http://dx.doi.org/10.13005/msri/150103>
13. **V.Madhusudhana Reddy**, N Kundana, T.Sreekanth, “Sensing Performance of PEO: KClO₄ Polymer Electrolyte as Gas Sensor” Journal for Advanced Research in Applied Sciences, Vol.4, No 7, December 2017.ISSN: 2394-8442, UGC Care approved journal. S No: 63188. <https://www.materialsciencejournal.org/pdf-downloads/>
14. K.Venkata Ramana, M. Chandra Shekar, **V. Madhusudhana Reddy**, A.R.Subrahmanyam, M.Ravindar Reddy, “Characterization of LiClO₄ Doped PVDF Solid Polymer Electrolyte”, International Journal of Emerging Technology and Advanced Engineering (IJETA), Vol.7, No.11, November 2017, 484-488. ISSN:2250-2459, UGC Care approved journal S

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http://www.ijetae.com/files/Volume7Issue11/IJETAE_1117_77.pdf

15. **V.Madhusudhana Reddy**, N Kundana, T.Sreekanth “Transport properties of (PEO + KClO₄) solid polymer electrolytes”, International Journal Of Current Engineering And Scientific Research (IJCESR), Vol. 4, No. 12, December 2017, 59-64. ISSN: 2394-0697. <https://troindia.in/journal/ijcesr/content.html>
16. **V.Madhusudhana Reddy**, T.Sreekanth “The effect of nano filler Al₂O₃ on (PEO + KClO₄) based solid polymer electrolyte gas sensors”, International Journal of Applied Physics and Mathematics, Vol. 4, No. 2, March 2014, 99-102, ISSN:2010-362X. <https://doi.org/10.7763/IJAPM.2014.V4.262>
17. **V.Madhusudhana Reddy**, T.Sreekanth “Study of Characterization of (PEO+KClO₄) polymer electrolyte system” International journal of Research in Engineering and technology(IJRET),vol3, Issue2, February,2014, 263-267, ISSN: 2319-1163. <https://doi.org/10.15623/ijret.2014.0302046>
18. **V.Madhusudhana Reddy**, M.Chandra Shekar, T.Sreekanth “Structural investigation of Nanocomposite (PEO + KNO₃ + Nano Al₂O₃) solid polymer electrolytes,” Technology Spectrum, Volume 4, No.3, November, 2010, 1- 4. ISSN:0974-6854

Scientific presentations/peer-reviewed presentations:

1. **V Madhusudhana Reddy** “Crafting Ionic Pathways: Magnesium Triflate-Infused PVB Electrolytes for Advanced Battery Applications” **National Conference** on NanoMaterials for Energy Harvesting and Storage Applications (NCNEA-2025) organized by Arignar Anna Govt Arts College, Musiri, Trichy, January 08-09,2025.
2. Kundana, N., Venkatapathy, M., Neeraja, **V Madhusudhana Reddy** “Functionality of Zirconium Nanofiller on structural and ionic properties of PVDF -co-HFP blended with PMMA Nanocomposite Polymer Electrolytes” **International Conference** On Fluid Flows And Energy Storage Materials(ICFESM-2023) organized by Mallareddy University. (**AIP proceedings**)
3. Kundana, N., Venkatapathy, M., Neeraja, **V Madhusudhana Reddy** “Preparation and Characterization of Zr-Nanofiller-Based PEO/PVDF-HFP-Mg Polymer Electrolyte Membranes for Battery Application” **International Conference** On Intelligent Manufacturing And Energy Sustainability” (ICIMES-2022) Organized By Malla Reddy College Of Engineering & Technology, June 22, 2022, pp. 307–316. (**Springer Proceedings- Scopus indexed**).
4. Kundana, N.,Venkatapathy, M., Neeraja, **V Madhusudhana Reddy** ”Ionic Conductivity and Dielectric behaviour of polymer electrolytes based on PVdF-co-HFP and Magnesium

Triflate ($\text{Mg}(\text{CF}_3\text{SO}_3)_2$)“ 3rd **International conference** on chemical Bio and Environmental Engineering CHEMBION-2022 in collaboration with the department of chemical Engineering NIT JALANDHAR organized by BV Raju Institute Of Technology ,Narsapur ,Medak ,Telangana, 4-5 NOV, 2022.

5. **V. Madhusudhana Reddy**, N Kundana, Venkatapathy, V Neeraja, “nanomaterials and its applications” **National Conference** on Recent Trends in material Science”(NCRTMS-2017), THR College, Perambalur, September 14-15,2017.
6. **V. Madhusudhana Reddy**, N Kundana, T.Sreekanth “Investigation of (PEO+KNO₃) Polymer electrolyte as gas sensors” **International Conference** on Trend setting Innovations in Chemical Technology- Application in Pharma Industry” , JNT University Hyderabad, December 16-18,2015.
7. **V.MadhusudhanaReddy**, M.Chandra Shekar, T.Sreekanth “Study of characterization and Transport Properties of (PEO+KClO₄) Polymer electrolyte system” **International Conference** on Nano, Bio & Material Sciences, Osmania University, Hyderabad, January 8-10,2014.
8. **V.Madhusudhana Reddy**, M. Chandra Shekar, T.Sreekanth, Kundana.N “Ion Transport and electrochemical Characteristic studies of a (PEO+KCLO₄+Nano-sized Al₂O₃) nano composite polymer electrolyte system” **National Conference** on NanoScience,Nano Engineering and Applications, JNT University Hyderabad, April 27-28, 2012.
9. B. Veerenderbabu, T. Sreekanth, **V. Madhusudhana Reddy**, M.ChandraShekar “Preparation and Characterization of (PEO +KI) Polymer electrolyte films” **National Conference** on Nano materials &Nano technology (NCNN-2012)” JNTUA CEP, Pulivendula, February 3-4, 2012.
10. T. Sreekanth, **V. Madhusudhana Reddy**, M.Chandra Shekar, N Kundana “Synthesis and Characterization of Nano composite Polymer Electrolyte Thin Films: Application to Batteries” National Conference on Nano materials & Nano technology (NCNN-2012)” JNTUA CEP, Pulivendula, February 3-4, 2012.
11. **V. Madhusudhana Reddy**, M.Chandra Shekar, T.Sreekanth “Synthesis and characterization of (PEO+NaClO₄+ Nano-sized Al₂O₃) nano composite polymer electrolytes for fuel cell applications” **National Conference** on latest trends in emerging materials (NCLTEM-2012), Hyderabad, India, January,20-21, 2012.
12. **V. Madhusudhana Reddy**, M.Chandra Shekar ,T.Sreekanth, K.V Rao, Kundana.N, “(PEO+KClO₄+ Nano-sized Al₂O₃) based nano composite polymer electrolytes : Application to gas sensors” **International Conference** on Nano technology and functional materials, Hyderabad , India, January 4-7, 2012.

13. **V. Madhusudhana Reddy**, M.Chandra Shekar, T.Sreekanth, D. Sreenivas Reddy “Nanocomposite polymer electrolytes based on (PVB+NaPF₆+ Nano-sized Al₂O₃)”, International Conference on recent trends in Nano and Bio Sciences (ICORTNBS-2010), Hyderabad, India, February 24-26,2010.
14. K. Venkateswara Rao, Y.Aparna, C.S. Sunandana, **V. Madhusudhana Reddy** “Synthesis and characterization of ZnO nano particles” **International conference** on Advanced Nanomaterials and Nanotechnology(ICANN-2009), IIT Guwahati, India, December 9-11, 2009.
15. **V. Madhusudhana Reddy**, M.ChandraShekar, T.Sreekanth, M.Jaipal Reddy, K.V Rao, “Structural investigation of Nanocomposite (PEO + KNO₃ + Nano Al₂O₃) solid polymer electrolytes” **International conference** on Advanced Nanomaterials and Nanotechnology(ICANN-2009), IIT Guwahati, India, December 9-11, 2009.
16. T.Sreekanth, **V.Madhusudhana Reddy**, M.Chandra Shekar “Study of Ion – Conducting PEO Based Polymer Electrolyte as Solid State Battery” **National conference** on Recent Trends in emerging Frontiers of physical sciences (RTEFPS-2009), BITS, Ranchi, India , November 02 -03, 2009
17. T.Sreekanth, **V. Madhusudhana Reddy**, M.Chandra Shekar, U.V Subbarao “Effect of the plasticizer on the PEO based polymer electrolytes complexed with NaClO₃ salt”, **National seminar** on recent trends in multi-functional oxide materials, Hyderabad, India, July 18-19, 2009
18. T.Sreekanth, **V. Madhusudhana Reddy**, M.Chandra Shekar, M.Jaipal Reddy, U.V Subbarao “ Performance of PEO + NaClO₃ based polymer electrolyte films as gas sensor” **National conference** on advanced materials and Technology (NCAMT-2009), Hyderabad, India, July 13-14, 2009
19. **V.Madhusudhana Reddy**, M. Chandra Shekar, T.Sreekanth “Study of Performance of (PEO+NaClO₃) Based Polymer Electrolyte Films as Carbon Monoxide Gas Sensor.” **International Conference** on Innovative Technologies (ICIT-09), Bahadurgarh, Haryana, India, June 18, 2009.
20. T.Sreekanth, **V. Madhusudhana Reddy**, M.Chandra Shekar, U.V Subbarao “Conductivity studies on (NaClO₃+PEO) Based Solid Polymer Electrolyte Films”, **National seminar** on Advances in Materials Science (NSAMS – 2009), MS University, India, Mar 16-17, 2009
21. **V.Madhusudhana Reddy**, M. Chandra Shekar “Ionic conductance behavior of polymeric electrolyte films containing KCl and their application to rechargeable batteries” **National conference** on Thin Films & Applications (NCTFA- 2009), Tanjavur, India , March 6 - 7,

2009.

Patents Published:

1. Dr V Madhusudhana Reddy, Dr K Ramakrishna, Dr V Neeraja, Dr P Vengal Rao et al, "Photocatalytic Nanomaterial for Water Purification and Organic Pollutant Degradation" Indian Patent No.202441088613 A , Published On 22.11.2024.
2. Dr V Madhusudhana Reddy, Dr K Ramakrishna, Dr V Neeraja, Dr P Vengal Rao, Dr P Gangadhar et al, "Nano-Coated Sensors for Rapid Detection of Chemical and Biological Contaminants" Indian Patent 202441088612 A , Published On 22.11.2024.
3. Dr V Madhusudhana Reddy, Dr N Kundana, et al, "Polyoxometalates as Versatile Green Catalyst with Innovations In Sustainable C-C Bond Formation" Indian Patent 202441092863 A, Published On 06/12/2024.
4. Dr V Madhusudhana Reddy, Dr V Neeraja, Dr N Kundana, Dr P Vengal Rao et al, "Corona Virus Detection System Using Sensors" Indian Patent No.202141016976 A , Published On 23.4.2021.