

a. Name: Dr. R. Vijay

b. Qualification: M.Tech., Ph.D.

c. Designation: Scientist-F and Team Leader

d. Contact information:

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e. Experience:

He worked at Non Ferrous Materials Technology Development Centre (NFTDC) as an Assistant Project Manager from 1992 to 1994 on development and setting up of a pilot plant facility for “Extraction of Molybdenum from Molybdenite Concentrate”. After joining International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI) as a scientist in 1994, he has been working on Heat Pipe based Heat Transfer devices, Mechanical Alloying, Hydrogen Storage Materials, Nanostructured Materials, Oxide Dispersion Strengthened Steels and Simoloyer Technology. He has immense interest in using Mechanical Alloying as a technique to produce materials for critical technologies. Presently he is holding Scientist ‘F’ position and Head of Centre for Nanomaterials at ARCI.

f. Research Areas of Interest:

Nanostructured materials, High Kinetic Processing (Mechanical Alloying), Oxide Dispersion Strengthened Materials, Powders for Additive Manufacturing, Powder Metallurgy, Biomaterials and Hydrogen Storage Materials.

g. Awards and Honours:

1. FTCCI Excellence Award – 2016-17 for Individual achievement in Science and Engineering (Chelikani Atchut Rao Award) from Federation of Telangana Chamber of Commerce and Industry
2. Fellow of Telangana Academy of Sciences in recognition of his contributions to Science and Technology from Telangana Academy of Sciences, 2018
3. Indo-US Fellowship for working at Department of Materials, University of California, Santa Barbara, USA, under Prof. G.R. Odette. Aug. 2010 – Feb 2011.
4. “Engineer of the Year 2007” award from Andhra Pradesh state government and Institution of Engineers, Hyderabad Centre.
5. DST-DAAD fellowship for working at IKE, University of Stuttgart, Germany, under Prof. M. Groll. Aug 2005 – Nov 2005.

h. List of Journal Publications:

1. N.S. Anas, R.K. Dash, Tata N Rao and R. Vijay, Optimization of Solutionising Temperature for Al alloy-CNT Composites produced by High Energy Mechanical Milling, *J Mater. Sci.* (under review)
2. N.S. Anas, R.K. Dash, Tata N Rao and R. Vijay, Influence of Process Control Agents on Microstructure and Mechanical Properties of Al-Cu-Mg Alloy produced by Mechanical Alloying, *Mater. Sci. Eng. A*, 751 (2019) 171-182
3. M. Nagini, R. Vijay, Koteswararao V. Rajulapati, A.V. Reddy and G. Sundararajan, "Microstructure-mechanical property correlation in oxide dispersion strengthened 18Cr ferritic steel", *Mater. Sci. Eng. A*, 708 (2017) 451-459.
4. J. Rajesh, R. Vijay, S. Ganesh Sundara Raman and G. Sundararajan, Hot deformation behavior of n-ODS-18Cr steel, *Procedia Eng.* 207 (2017) 191-196.
5. N.S. Anas, R.K. Dash, Tata N. Rao, and R. Vijay, "Effect of Carbon Nanotubes as Reinforcement on the Mechanical Properties of Aluminum-Copper-Magnesium Alloy", *J Mater. Engg. Performance*, 26 (2017) 3376-3386.
6. K. Suresh, M. Nagini, R. Vijay, M. Ramakrishna, Ravi C. Gundakaram, A.V. Reddy and G. Sundararajan, "Microstructural studies of oxide dispersion strengthened austenitic steels", *Mater. Design*, 110 (2016) 519-525.
7. M. Nagini, R. Vijay, Koteswararao V. Rajulapati, K. Bhanu Sankara Rao, M. Ramakrishna, A.V. Reddy and G. Sundararajan, "Effect of process parameters on microstructure and hardness of oxide dispersion strengthened 18Cr ferritic steel", *Metall Mater. Trans. A*, 47 (2016) 4197-4209.
8. M. Nagini, A. Jyothirmayi, R. Vijay, Tata N. Rao, A.V. Reddy, Koteswararao V. Rajulapati, and G. Sundararajan, "Influence of dispersoids on corrosion behavior of oxide dispersion strengthened 18Cr steels made by high-energy milling", *J Mater. Engg. Performance*, 25 (2016) 577-586.
9. A. Bhadauria, L. K. Singh, A.R. Ballal and R. Vijay, "Effect of Yttria Dispersion on Creep Properties of Pure Iron", *Trans Indian Inst Met.* 69 (2016) 253-259.
10. S. Santra, S. Amirthapandian, A. J. London, B. K. Panigrahi, R.M. Sarguna, S. Balaji, R. Vijay, C. S. Sundar and C. Grovenor, "Effect of Ti and Cr on dispersion and structure of oxide nano-particles in model ODS alloys", *Acta Mater.* 97 (2015) 223-233.
11. M. Nagini, R. Vijay, M. Ramakrishna, A.V. Reddy and G. Sundararajan, "Effect of duration of milling on microstructural and mechanical properties of ODS-9Cr steel", *Mater. Sci. Eng. A*, 620 (2014) 490-499.
12. R. Vijay, A.V. Reddy and G. Sundararajan, "Development of oxide dispersion strengthened steels for next generation power plants", *Nanotech Insights*, 5 (2014) 66-70
13. R. Vijay, M. Nagini, S.S. Sarma, M. Ramakrishna, A.V. Reddy and G. Sundararajan, "Structure and properties of nano scale oxide dispersed iron", *Metall Mater. Trans. A*, 45 (2014) 777-784.

14. G. Sundararajan, R. Vijay and A.V. Reddy, "Development of 9Cr ferritic-martensitic and 18Cr ferritic oxide dispersion strengthened steels", *Current Science*, 105 (2013) 1100-1106.
15. R. Vijay, M. Nagini, J. Joardar, M. Ramakrishna, A.V. Reddy and G. Sundararajan, "Strengthening mechanisms in mechanically milled oxide-dispersed iron powders", *Metall Mater. Trans. A*, 44A (2013)1611-1620.
16. Kaliyan Hembram, R. Vijay, Y.S. Rao and T.N. Rao, "Doped nanocrystalline ZnO powders for Non-linear Applications by Spray Pyrolysis method", *J Nanoscience and Nanotechnology*, 9, (2009) 4376-4382.
17. P. Muthukumar, M.P. Maiya, S. Srinivasa Murthy, R. Vijay and R. Sundaresan, "Tests on mechanically alloyed Mg₂Ni for hydrogen storage", *J. Alloys Compd.* 452 (2008) 456-461.
18. R. Vijay, R. Sundaresan, M.P. Maiya, S. Srinivasa Murthy, "Application of Mg-x wt% MnNi₅ nanostructured composites in a hydrogen storage device", *Int. J Hydrogen Energy* 32 (2007) 2390-2399.
19. R. Vijay, R. Sundaresan, M.P. Maiya, S. Srinivasa Murthy, "Hydrogen storage properties of Mg - Cr₂O₃ nanocomposites: The role of catalyst distribution and grain size", *J Alloys Compd.* 424 (2006) 289-293.
20. R. Vijay, R. Sundaresan, M.P. Maiya and S. Srinivasa Murthy, "Comparative evaluation of Mg-Ni hydrogen absorbing materials prepared by mechanical alloying", *Int. J Hydrogen Energy*, 30 (2005) 501-508.
21. R. Vijay, R. Sundaresan, M.P. Maiya, S. Srinivasa Murthy, Y. Fu, H.-P. Klein, and M. Groll, "Characterisation of Mg-x wt.% FeTi (x = 5-30) and Mg-40 wt.% FeTiMn hydrogen absorbing materials prepared by mechanical alloying", *J Alloys Compd.* 384 (2004) 283-295.
22. D.Sivaprahasam, G.Sivakumar, R.Vijay and R. Sundaresan, 'Mechanically Alloyed Fe-SiC Powder for Detonation Spray Coating', in "Trends in Mechanical Alloying", P.R.Soni and T.V. Rajan, Editors, Oxford & IBH Publishing, New Delhi, Kolkata, 2002, pp. 84-95.

i. List of patents:

1. Heat pipe based solar grain dryer – **Indian Patent granted (No: 184674)**
2. Heat pipe based solar cooking device – **Indian Patent granted (No: 184675)**
3. S. Anandan, P.M. Pratheeksha, R. Vijay and Tata N. Rao, A method of producing high performance lithium titanate anode material for lithium ion battery applications, **Indian Patent Application No. E-2/1972//2017/DEL dated 27th December 2017.**
4. S. Anandan, P.M. Pratheeksha, R. Vijay and Tata N. Rao, A method of producing high performance lithium titanate anode material for lithium ion battery applications, Inventors: on **PCT International Application No. PCT/IN2018/050080 dated 17.02.2018.**
5. S. Anandan, P.M. Pratheeksha, R. Vijay and Tata N. Rao, A method of producing high performance lithium titanate anode material for lithium ion battery

applications, Inventors: **Japan Patent Application No. 2019-520394** based on PCT International Application No. PCT/IN2018/050080 dated 17.02.2018.

6. Dibyendu Chkarvarty, P.V.V. Srinivas and R. Vijay, Method of fabricating tungsten based composite sheets by spark plasma sintering technique for making components, **Indian Patent Application No. 201911008605 dated 6th March 2019.**

j. Conference Proceedings:

1. R. Vijay, R. Sundaresan, M.P. Maiya and S. Srinivasa Murthy, “Hydrogen Storage Characteristics of Magnesium-Aluminium Compounds Prepared by Mechanical Alloying”, *Proceedings International Hydrogen Energy Congress and Exhibition IHEC 2005*, Istanbul, Turkey, 13-15 July 2005.
2. R. Vijay, R. Sundaresan, G.V.N. Rao, M.P. Maiya and S. Srinivasa Murthy, “Sorption characteristics of Mg-x wt% $MmNi_5$ (x = 10-50) nanostructured composites prepared by mechanical alloying”, *Proceedings International Conference on Solid State Hydrogen Storage – Materials and Applications*, 31 Jan-1 Feb 2005, Hyderabad, India.

k. Affiliation to Professional societies:

Life member of: Powder Metallurgy Association of India (PMAI)
Institution of Engineers, Hyderabad Chapter
Indian Institute of Metals (IIM)
Materials Research Society of India (MRSI)

l. Photograph