



P SAI KARTHIK

Researcher

Contact

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Languages

English, Hindi, Telugu,
presently learning German

Very Good

A researcher with 8 years of experience in powder making & consolidation, mechanical & microstructural characterization, preceded by 2 years of industrial work in stainless steel (SS) forging shop. Contributed to success in the development of propellant grade ultra-fine Al powder, oxide dispersion strengthened (ODS) Fe alloys and quality improvement in SS flanges and round bar. Trained in mechanical and metallurgical sciences backed by strong mathematical and communication skills.

Work history and accomplishments

Oct-2013 to

Project Scientist-B

Current

ARCI, Hyderabad, Telangana

- Successfully produced 160 kg of ODS-RAFM powder through inert gas atomization and mechanical alloying and supplied it to Institute of Plasma Research, Gandhinagar
- Development of ODS austenitic steel for gas turbine applications
- Successfully developed propellant grade aluminium powder with increased burning rates for DRDO, Jagdalpur

Hands-on experience:

- **Vacuum Induction Melting Furnace:** Fe-P, Fe-Mn, Fe-Mn-Si, alloys were made

Powder Making:

- **Inert gas atomization:** Fe-Cr, Fe-Al, Ti-Cu alloys
- **High energy ball milling:** ODS alloy powders
- **Radio frequency induction plasma:** Al powder

Powder Consolidation:

- Spark plasma sintering
- Hot upset forging and extrusion

Characterization:

- Scanning electron microscope SU1510, Hitachi.
- Mechanical testing (hardness & tensile tests)

Relevant Courses attended:

- Powder Metallurgy Short Course
- GIAN course on nanomaterials
- SPARC sponsored workshop on additive manufacturing
- Indo-German workshop on advanced automotive steels

Skills

Communication Skills



Mathematical Skills



Literature Review



Experiment planning and execution



Very Good

Data Consolidation



Manuscript or report preparation



Good

Aug-2011 to
Oct 2013

Junior Manager in Quality

Viraj Profiles Limited, Boisar, Maharashtra

- Drafted and established standard operating procedure (SOP) to produce stainless steel forgings
- Initiated pre-dispatch inspection to ensure delivery of order as per customer requirements
- Minimized customer complaints from 15 per month to less than 5 per month and saved compensation of 100 \$ per month paid against them

Current Interests

- Gas atomization of metallic alloys.
- Spark plasma sintering
- Additive manufacturing

Course Work

July-2009 to
July 2011

M.Tech: Metallurgical Engineering

IIT Roorkee - Uttarakhand, India

GPA: 8.22 / 10.00 (4th in a class of 30)

Nov 2005 to
May 2009

B.Tech: Mechanical Engineering

JNTU Anantapur - Andhra Pradesh, India

GPA: 70.39% (2nd in a class of 70)

June 2002
to Mar 2004

Intermediate Public Examination:

Mathematics-Physics-Chemistry

Board of Intermediate Education - Andhra Pradesh

GPA: 91.0%

June 2001
to Mar 2002

Secondary School Certificate: Languages, Mathematics and Sciences

Board of Secondary Education - Andhra Pradesh

GPA: 90.5% (State 36th Mark and First in a class of 50)

Journal/Conference Publications

- 1) **P. Sai Karthik**, S.B. Chandrasekhar, D. Chakravarty, P.V.V. Srinivas, V.S.K. Chakravadhanula, T.N. Rao, "Propellant grade ultrafine aluminum powder by RF induction plasma" Advanced Powder Technology 29 (2018) 804–812.
- 2) **P. Sai Karthik**, S B Chandrasekhar, K Satya Prasad, A V Reddy, R Vijay, "Oxide Dispersion Strengthened Austenitic Steel for High Temperature Applications"- Paper presented at International Symposium on Meta Stable, Nanostructured and Amorphous Materials, ISMANAM-2019 organized by IIT Madras.
- 3) S.Ganesh **P. Sai Karthik**, M.Ramakrishna, A.V.Reddy, S.B.Chandrasekhar, R.Vijay, "Ultra–high strength oxide dispersion strengthened austenitic steel", MSE A 814 (2021) 141192.
- 4) Ramya Sree Ganji , **P. Sai Karthik**, K. Bhanu Sankara Rao, Koteswararao V. Rajulapati, "Strengthening mechanisms in equiatomic ultrafine grained AlCoCrCuFeNi high-entropy alloy studied by micro- and nanoindentation methods"Acta Materialia 125 (2017) 58-68.
- 5) Deekshith G.Kalali, SairamAntharama, MohsinHasan, **P. Sai Karthik**, P. Sudharshan Phani, K.Bhanu Sankara Rao Koteswararao V.Rajulapati, "On the origins of ultra-high hardness and strain gradient plasticity in multi-phase nanocrystalline MoNbTaTiW based refractory high-entropy alloy", Materials Science and Engineering: A 812 (2021) 141098.
- 6) Abhijit, J. Varghese, P. Chalavadi, **P. Sai Karthik**, K. Bhanu Sankara Rao, K. V. Rajulapati, "Negative Strain Rate Sensitivity in Two-Phase Nanocrystalline CoCrFeMnNi High-Entropy Alloy with Broader Grain Size Distribution Studied by Nanoindentation "Trans Indian Inst Met (2019) 72(10):2861–2867".