

Dr. Sindhura Gangireddy

EDUCATION

University of Michigan, Ann Arbor, MI
Ph.D. in Materials Science and Engineering

April 2012

University of Michigan, Ann Arbor, MI
M.S. in Materials Science and Engineering

April 2009

GPA: 3.89/4.00

Indian Institute of Technology (I.I.T.) Bombay, India
B.Tech. in Metallurgical Engineering and Materials Science

May 2007

GPA: 9.16/10.00

WORK EXPERIENCE

Army Research Lab –AMMPI (2017 – Present)

Research scientist

- Assessing potential of new generation materials for ballistic applications – high entropy alloys and additive lattice structures.
- Developing correlations between strain rate sensitivity, dynamic behavior, shear localization tendencies and microstructure/processing conditions.

NIST, Gaithersburg MD (2015 – 2017)

Postdoctoral researcher

- Generated improved constitutive models for high value structural materials (Ti-6Al-4V, CP-Ti, pearlitic and austenitic steels) to simulate dynamic behavior during rapid production.
- Created **Gangireddy modification factor** to Johnson-Cook model for gradual phase transformations.

Efficient Carbon Mgmt. Solns., Hyderabad, India (2012 – 2014)

Chief Technology Consultant

- Handled project execution including feasibility studies, generation of energy projections and financial predictions including cost modeling for large scale solar photovoltaic power projects.
- Created tools for generating loss optimization and layout designing.

Advanced Ceramic Manufacturing Lab, Ann Arbor, MI (2007-2012)

Graduate Research Assistant

- Designed and built a novel technique for non-contact performance testing under extreme environments.
- Achieved creep, fatigue, *in situ*-video data above 2000°C in UHTCs. Discovered dominant phenomena in oxidation resistance of UHTCs for thermal barrier systems in supersonic vehicles.

JOURNAL PUBLICATIONS (FIRST AUTHOR LIST)

Gangireddy, S., Gwalani, B., Soni, V., Banerjee, R., Mishra, R.S. (2019). Contrasting mechanical behavior in precipitation hardenable AlXCoCrFeNi high entropy alloy microstructures: single phase FCC vs. dual phase FCC-BCC, MSEA 739, 158-166.

Gangireddy, S., Komarasamy, M., Faierson, E. J., & Mishra, R. S. (2019). High strain rate mechanical behavior of Ti-6Al-4V octet lattice structures additively manufactured by selective laser melting (SLM). MSEA 745, 231-239.

Gangireddy, S., Gwalani, B., Liu, K., Faierson, E.J. and Mishra, R.S., (2019) Microstructure and mechanical behavior of an additive manufactured (AM) WE43-Mg alloy. Additive Manufacturing, 26, 53-64.

Gangireddy, S., Gwalani, B., and Mishra, R.S. "Grain size dependence of strain rate sensitivity in a single phase FCC high entropy alloy Al0.3CoCrFeNi." Materials Science and Engineering: A 736 (2018): 344-348.

Gangireddy, S., 2018. Effect of Initial Microstructure on High-Temperature Dynamic Deformation of Ti-6Al-4V Alloy. *Metallurgical and Materials Transactions A*, 49(10), pp.4581-4594.

Gangireddy, S., Gwalani, B., Liu, K., Banerjee, R. and Mishra, R.S., 2018. Microstructures with extraordinary dynamic work hardening and strain rate sensitivity in Al_{0.3}CoCrFeNi high entropy alloy. *Materials Science and Engineering: A*, 734, pp.42-50.

Gangireddy, S., Kaimiao, L., Gwalani, B., Mishra, R.S. (2018). Microstructural dependence of strain rate sensitivity in Al_{0.1}CoCrFeNi HEA. *MSEA* 727, 148-159.

Gangireddy, S., Faierson, E., Mishra, R.S. (2018). Influences of post-processing, orientation, location, and induced porosity on the dynamic compression behavior of Ti64 Alloy built through Additive Manufacturing, *Journal of Dynamic Behavior of Materials*, 4(4) 441-451.

Gangireddy, S., Whitaker, D.W., Mishra, R.S. (2018). Significant Contribution to Strength Enhancement from Deformation Twins in Thermomechanically Processed Al_{0.1}CoCrFeNi Microstructures, *JMEPEG* (accepted Jan 2019).

Gangireddy, S., Mates, S.P., (2018). Effect of phase transformation on high temperature dynamic flow stresses of CP-Ti, *Int J Metall Met Phys* 3:106..

Gangireddy, S., Mates, S.P., Luecke, W. (2017). High temperature dynamic mechanical response of a Ti-6Al-4V alloy: a modified constitutive model for gradual phase transformation, *Journal of Dynamic Behavior of Materials* 3(4), pp. 557-574.

Gangireddy, S., Mates, S.P., (2017). High-strain-rate deformation of Ti-6Al-4V through compression Kolsky Bar at high temperatures, *Dynamic Behavior of Materials*, Vol. 1, pp. 215-220.

Gangireddy, S., Halloran, J. W., & Wing, Z. N. (2013). Flexural creep of zirconium diboride–silicon carbide up to 2200° C in minutes with non-contact electromagnetic testing. *Journal of the European Ceramic Society*, 33(15), 2901-2908.

Gangireddy, S., Halloran, J. W., & Wing, Z. N. (2011). High temperature, non-contact, electro-magnetic mechanical apparatus for creep testing. In *Mechanics of Time-Dependent Materials and Processes in Conventional and Multifunctional Materials, Volume 3* (pp. 219-220). Springer New York.

Gangireddy, S., Karlsdottir, S. N., Norton, S. J., Tucker, J. C., & Halloran, J. W. (2010). In situ microscopy observation of liquid flow, zirconia growth, and CO bubble formation during high temperature oxidation of zirconium diboride–silicon carbide. *Journal of the European Ceramic Society*, 30(11), 2365-2374.

Gangireddy, S., Halloran, J. W., & Wing, Z. N. (2010). Non-contact mechanical property measurements at ultrahigh temperatures. *Journal of the European Ceramic Society*, 30(11), 2183-2189.

Gangireddy, S., Karlsdottir, S. N., & Halloran, J. W. (2010). Liquid oxide flow during oxidation of zirconium diboride-silicon carbide ultra high temperature ceramics. *Key Engineering Materials*, 434, 144-148.

CONFERENCE PAPERS/PRESENTATIONS

- Ultra High Temperature Ceramics Conference, Lake Tahoe, CA (Aug '08)
- Materials Science and Technology MS&T 2008 Conference, Pittsburgh, PA (Oct '08)
- International Conference on Advanced Ceramics & Composites (ICACC), Daytona, FL (Jan '09)
- Materials Science and Technology MS&T 2009 Conference, Pittsburgh, PA (Oct '09)
- Gordon Research Conference, New London, NH (Aug '10)
- Materials Science and Technology MS&T 2010 Conference, Houston, TX (Oct '10)
- SEM Annual Conference & Exposition on Experimental and Applied Mechanics, CT: (June '11)
- Materials Science and Technology MS&T 2011 Conference, Columbus, OH (Oct '11)
- SEMXIII International Congress on Experimental and Applied Mechanics, Orlando FL: (June '16)
- The Minerals, Metals and Materials Society TMS 2017, San Diego CA (Feb '17).
- SEMXIII International Congress on Experimental and Applied Mechanics, Orlando FL: (June '16)
- SEM Annual Conference & Exposition on Experimental and Applied Mechanics, IN: (June '17)
- The Minerals, Metals and Materials Society TMS 2018, Phoenix, AZ (Mar '18- accepted).

AWARDS AND FELLOWSHIPS

- I.I.T. Bombay academic award for outstanding performance.
- *Pratibha* fellowship for academic excellence from Indian government.
- Rackham pre-doctoral fellowship.
- Nominations for Sarah Parker prize and Lipschutz award.

EXTRACURRICULAR ACTIVITIES

- Member of editorial board of Journal of Thermal science and engineering.
- Active member at Aarthi Home for orphaned children and women rehabilitation program, India.
- Elected director of executive board in University of Michigan Engineering Council (UMEC).
- Assistant-editor and founding member of newsletter, *Dhatuki*, I.I.T. Bombay.
- Hobbies: Stock trading, oil painting, traveling.