

Exponent®
Engineering & Scientific Consulting

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Professional Profile

Dr. Talignani is a metallurgist and materials scientist specializing in the failure analysis of metallic components and the mechanical behavior of materials (i.e., strength, fracture, and fatigue) that influence how metals perform in service.

His background includes work in metal additive manufacturing (i.e., 3D printing), where he analyzed how the processing conditions affected the final material properties, internal structure, and discontinuities. He has experience with a wide range of material systems, including high strength aluminum alloys, tungsten and tungsten based alloy, austenitic stainless steels (i.e., 316L), and coppers, enabling him to evaluate how different metals respond to stress, temperature, and environmental exposure and to translate that understanding into clear, practical guidance for clients. Dr. Talignani applies this knowledge to assess material performance in various service conditions and to understand and optimize the material processing-performance relationship.

Dr. Talignani has experience with a wide range of advanced characterization methods, such as scanning electron microscopy (SEM), diffraction based microstructure analysis (XRD and EBSD), computed tomography (CT), and transmission electron microscopy (TEM). Using this knowledge, alongside strong data analysis skills, he provides evidence based insights that support engineering conclusions.

Academic Credentials & Professional Honors

Ph.D., Materials Science and Engineering, University of California, Los Angeles (UCLA), 2025

M.S., Materials Science and Engineering, University of California, Los Angeles (UCLA), 2025

B.S., Materials Science and Engineering, University of California, Berkeley, 2020

Prior Experience

Graduate Student Researcher, UCLA, 2020 – 2025

Publications

Talignani, A., Seede, R., Whitt, A., Zheng, S., Ye, J., Karaman, I., ... & Wang, Y. M. (2022). "A review on additive manufacturing of refractory tungsten and tungsten alloys." Additive Manufacturing, 58, 103009.

Talignani, A. (2025). "Advanced Characterization of Deformation Mechanisms in Additively Manufactured Metallic Systems." (Doctoral dissertation, University of California, Los Angeles).

Lin, Y. K., Talignani, A., Liu, J., Liao, X., Li, Z., Yang, J. M., & Wang, Y. M. (2025). "Probing the onset of

microplasticity and activation volume of additively manufactured metals." Scripta Materialia, 258, 116487.

Pozuelo, M., Talignani, A., Mecklenburg, M., Wang, Y. M., & Marian, J. (2025). "Microstructural and mechanical characterization of the NbMoTaW refractory multi-principal element alloy after hot forging." Journal of Materials Science, 60(39), 18473-18485.

Presentations

Talignani, A., Zheng, S., DePond P., Strantza, M., Ye J., Wang, Y.M. (2023). “Crack mitigation strategies for pure tungsten via laser powder-bed-fusion”. TMS 2023 conference.

Talignani, A., Zheng, S., DePond P., Strantza, M., Ye J., Wang, Y.M. (2022). “Laser powder-bed-fusion of pure tungsten for fusion energy applications”. TMS 2022 conference.