DR. KATIE KOUBE

Dr. Katie Koube previously worked as a manufacturing and process engineer at SpaceX. She earned two Bachelor of Science degrees – one in Materials Science and Engineering and one in Earth and Planetary Science – in 2014 from Northwestern University. In 2022, she received her PhD in Materials Science and Engineering from The Georgia Institute of Technology.

While at SpaceX, Katie worked as a Manufacturing Engineer for the Falcon 9 Thermal Protection Systems (TPS). She increased the material strength and performance of key ablatives on the Falcon product line by more than 10X, allowing for full reusability of major sub-assemblies on the first stage rocket booster. She split her time between the Hawthorne and Cape Canaveral sites to rapidly iterate for full reusability of all TPS systems onboard the Falcon 9 first stage booster.

Katie was inspired to pursue a PhD in materials science and engineering after working with materials which have undergone extreme thermal and mechanical loading events during atmospheric reentry. As part of her PhD, she worked with Swamp Works, NASA's rapid technical innovation environment, to develop an extrusion-based 3D-printing technique that utilizes a slurry of suspended oxides found on the moon and Mars to print objects which are then postprocessed in hydrogen to create metallic structures. Her preliminary work has produced fully dense iron alloys that have In-Situ Resource Utilization (ISRU) applications, as well as more exotic cobalt-chrome alloys that have applications for aerospace manufacturing.

Katie has won several awards for her work including the Zonta Amelia Earhart Fellowship and the NASA Space Technology and Research Fellowship. She is active in outreach, mentoring several undergraduates, and participating in programs such as Skype a Scientist. In her spare time, she enjoys long-distance running, flying, hiking, cooking, and spending time with her family.