Red Hot: Researchers Develop Imaging Test for Glowing Rocket Engines

03/21/2018

News Release — LOGAN, UTAH, March 21, 2018 — Researchers at Utah State University are learning more about how extreme temperatures affect the structural integrity of rocket engines.

Berke recently received a $120,000 grant from NASA to develop a high-speed imaging test that overcomes a serious problem that is common in conventional imaging tests.

“During a hot-fire test, the engine nozzle and other components become so hot that they glow visibly bright,” said Berke. “When using standard high-speed cameras and lenses, that bright glow saturates the camera’s sensor and ruins the image.”

But Berke has a solution. He and his team are developing a new test method using high-speed cameras equipped with ultraviolet filters that significantly reduce the bright glow. His work is paving the way to improved testing procedures that will make next-generation rocket engines safer and more efficient.

The research has the potential to significantly improve the safety tests performed on rocket nozzles and other engine components and could have far-reaching applications for other areas of aerospace engineering including spacecraft reentry, gas turbine engines and hypersonic aircraft.

Berke and his team are currently working on small-scale engine tests using a small rocket motor developed at USU. They also plan to work with officials at NASA’s Marshall Space Flight Center on a full-scale hot-fire test.

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