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TESTING CAPABILITIES FOR HEAT TRANSFER IN SIMULATIVE LIQUID ROCKET ENGINE
COOLING CHANNELS AT THE JOHNS HOPKINS UNIVERSITY**Abstract**

Next generation liquid rocket engines will continue to rely on regenerative cooling to provide improved performance, using their fuel as a heat sink before combustion takes place. A key part of the successful operation of a liquid rocket engine is this heat transfer, which can be degraded over time by deposits left by thermally decomposed fuels in their cooling channels. For current hydrocarbon fuels of interest, kerosene and methane, these deposits may prove to be detrimental to heat transfer, especially given the focus on reusability in the community. The Johns Hopkins University has developed the capability to test simulative liquid rocket engine cooling channels at relevant conditions of interest in order to rapidly test thermal stability of hydrocarbon fuels. This presentation will show the current range of test conditions possible at The Johns Hopkins University, including fuels and heat fluxes of interest to the community.