

Abstract Submitted
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Acoustic temperature measurement in a rocket noise field JAROM
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— A one-micron diameter platinum wire resistance thermometer has been used to measure temperature fluctuations generated during a static GEM-60 rocket motor test. Exact and small-signal relationships between acoustic pressure and acoustic temperature are derived in order to compare the temperature probe output with that of a 3.18 mm diameter condenser microphone. After preliminary laboratory testing yielded good agreement between the transducers within the temperature probe's ~ 2 -kHz bandwidth, comparison between the temperature probe and microphone data during the motor firing show that the $\pm \sim 3$ K acoustic temperature fluctuations are a significant contributor to the total temperature variations.

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