

## SPECTROSCOPIC TECHNIQUES FOR COMBUSTION DIAGNOSTICS IN A MICROGRAVITY ENVIRONMENT

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The objective of NASA's microgravity combustion science program is to use that unique environment as a research tool to improve our understanding of fundamental combustion processes and to address spacecraft fire safety. There are multiple challenges in designing instrumentation compatible with this environment including the relatively small allowances for size, weight, power consumption, and time for obtaining data. Additionally experiments must be resistant to vibration and shock loads far in excess of those in terrestrial laboratories; and finally the tests are normally performed with no or minimal operator intervention. Techniques for spectroscopic combustion diagnostics that meet our constraints will be described and some results from drop tower experiments will be presented.