

Topic	Combustion Research for Aerospace Application
Company	Center of Applied Space Technology and Microgravity (ZARM), University of Bremen
TeAx Solutions	ThermalCapture for FLIR Tau 2 640, ThermoViewer

Case Study for ZARM – with ThermalCapture 640

Case #1: Combustion Research at ZARM laboratories

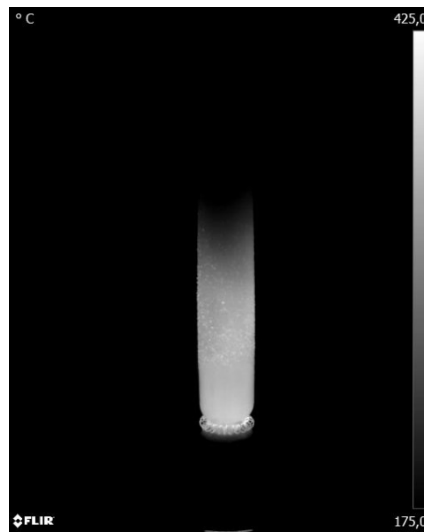


[Case#1_ZARM-Logo.png]



[Case#1_Experimenta-Setup.jpg]

[Case#1_Video.mp4]



[Case#1_IR-Picture.jpg]

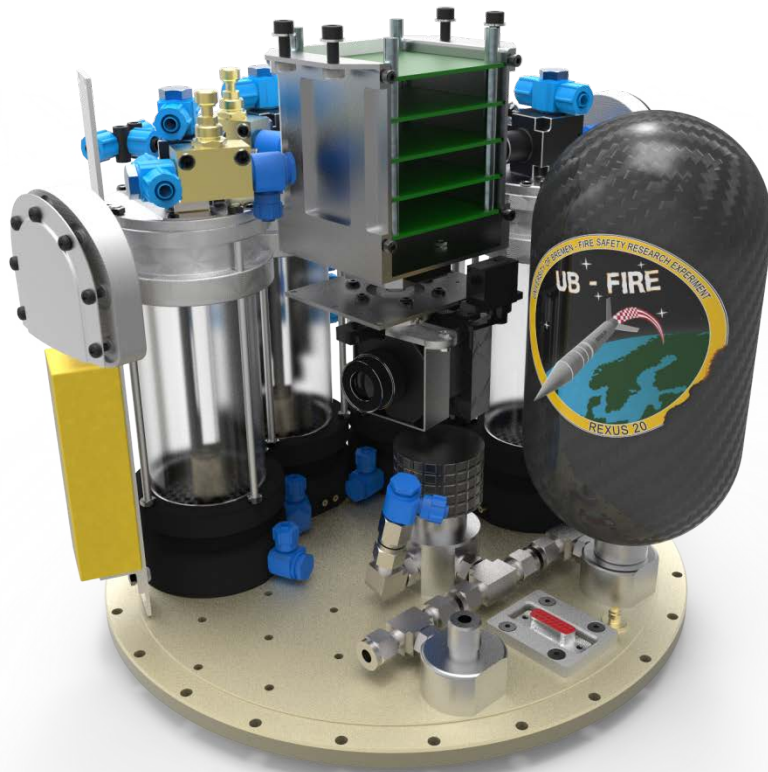
In combination with the FLIR Tau 2 640 infrared camera the TeAx ThermalCapture system is used to investigate the pyrolysis front propagation velocity of surface-structured PMMA samples at the Center of Applied Space Technology and Microgravity (ZARM). The IR system is integrated into an apparatus in accordance to the NASA-STD-6001B “Upward Flame Propagation Test” setup to determine the effect of different surface structures on flame spreading. The experiments are done in the area of fire safety research for human spaceflight. The ThermalCapture module enables fast and easy data recording and evaluation.

[source: ZARM, University of Bremen]

Case #2: Combustion Research Experiment on a Sounding Rocket under microgravity conditions (UB-FIRE)



[Case#2_Experimental-Setup.jpg]



[Case#2_Experimental-Setup-Rendering.png]



[Case#2_Student-Team-&-Rocket.jpg]



[Case#2_UB-FIRE-Logo.png]



[Case#2_Rocket-Launch.jpg]



[Case#2_Inflight-Picture.jpg]

[Case#2_IR-Video.mp4]

For combustion research purpose in the area of fire safety in human spaceflight the UB-FIRE experiment was built by five students from the University of Bremen within the German-Swedish REXUS/BEXUS program. Supported by the Center of Applied Space Technology and Microgravity (ZARM) a FLIR Tau 2 640 infrared camera was integrated into the experiment to investigate the pyrolysis front propagation velocity of different surface-structured PMMA samples under microgravity conditions. The system was supplemented by the TeAx ThermalCapture system which enabled the data storage during the experiment phase on a sounding rocket flight. The data captured by the ThermalCapture system were evaluated and published after rocket recovery.
[source: ZARM, University of Bremen]

Technical Adaptations by TeAx

[Filled out by TeAx Technology]

Testimonial

“TeAx supported the success of the UB-FIRE experiment and the scientific output with their ThermalCapture solution. The system is very compact and robust which was demonstrated by surviving the harsh rocket flight into space. The complete IR system is still in use at ZARM.”, UB-FIRE team leader/research associate at ZARM

Keywords for this case study

Combustion Research, Sounding Rocket Flight, Aerospace



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#WeLoveThermal	