

Abstract Submitted
for the DFD10 Meeting of
The American Physical Society

Response time characterization of fast responding pressure-sensitive paint TATSUYA OZAKI, HITOSHI ISHIKAWA, Tokyo University of Science, HIROTAKA SAKAUE, JAXA — Response time characterization of a fast responding pressure-sensitive paint (PSP) is important information in measuring an unsteady flow field. PSP is an optical pressure sensor. The luminescent image from the PSP is related to a pressure map. In the previous works, a time delay from a step change of pressure is generally used to characterize the response time. The thickness of the PSP as well as the PSP binding material greatly influences the response time. Because the temperature influences the diffusion or permeation of a PSP binder, it is also an important parameter to influence the response time. We build a shock tube to create a step change of pressure for response time characterization. This can control the temperature of the PSP. We discuss the PSP response times related to the temperature of the binder as well as the binding materials.

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Date submitted: 06 Aug 2010

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