

Abstract Submitted  
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**Development of a time-resolved luminescent imaging technique for unsteady temperature measurement in thermal fluid phenomena**  
KAZUNOBU KOBAYASHI, Osaka Gas Co., Ltd./University of Notre Dame, HIRO-TAKA SAKAUE, University of Notre Dame — This study presents a time-resolved luminescent imaging that uses two-luminescent outputs to extract the temperature information from an acquired image. This imaging technique is applied to measure the temperature distribution for unsteady thermal fluid phenomena. The thermographic phosphors are seeded into the flow and are excited by a laser sheet as an illumination source. The luminescent images from phosphors are captured to obtain the time-resolved temperature profile by using a fast frame-rate camera as an image acquisition unit. In this study, this technique have been carried out for measurements of two-dimensional gas-phase or boiling water temperature. In the presentation, a current status of this measurement will be presented.

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