
# A REVIEW ON APPLICATIONS OF OPTICAL TOMOGRAPHY IN INDUSTRIAL PROCESS

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***Abstract-This paper reviews some of the recent applications of optical tomography as a measurement tool for process parameters measurement such as flow concentration profiles, velocity profiles, and mass flow rate. The attentions that have been received by the optical tomography system for the applications of industrial parameters measurement are mainly because of the radiation safe emission of light sources to human or environment, fast response time, non-intrusive technique, and established models of light propagation through media or medium of interest thus making the solutions of forward and inverse problems to be relatively simpler to accomplish. The reports of the experimental result in this paper are mainly based on the previous works done by researchers in the area of optical tomography application where the main aspects are discussed. As a whole, the optical tomography can be applied to measure the velocity of beads in flow rig, measuring bubbles flow, flame imaging for combustion rate estimation, and flow concentration profile. Most of the applications as mentioned are discussed in this paper. In the***

***final parts of this paper, independent component analysis (ICA) is suggested to measure the turbidity of liquid with the air-bubble flow in a vertical pipe column.***

**Index terms*:* optical tomography, process tomography, flow imaging, concentration profiles, turbidity, attenuation coefficient, independent component analysis.**