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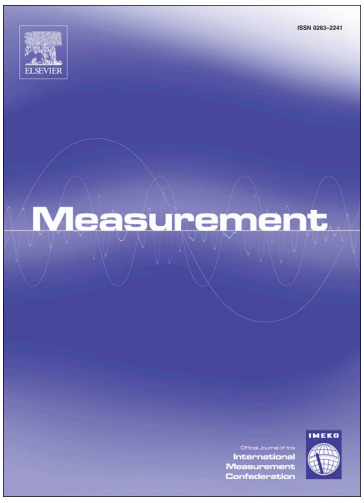

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Advanced Imaging Processing for Extracting Dynamic Features of Gas Turbine Combustion Chamber

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Abstract – Many industrial and transportation applications use combustion in dedicated chambers. Combustion implies, depending upon the nature and the amount of precursors, production of carbon dioxide, pollutants and dusts in terms of particulate matters. With the aim of reducing emission, lean combustion is of great interest. However flame stability within the combustor chamber is a key issue under lean conditions. In fact under lean conditions burners exhibit flame instability, flashback or lean blow out, until the flame extinction. Hence the online monitoring of these phenomena related to combustion instability is essential. One the most used techniques is to check temperature and flame stability by means of sensing probes resisting to high temperatures. Increasing the number of probes, it is possible to perform a 2D and 3D monitoring. However since these probes are costly and require heavy maintenance procedures, it could be wise to exploit imaging processing through cameras directed to portholes across which we can see inner parts, and

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