MSE 2024

24 - 26 Sep 2024 (Darmstadt)

dgm.de

Topic C: Characterization

C10: Opto-thermal measurement techniques

Abstract. Optical measurements are well suited for non-contact measurements and are, therefore, more and more applied to in-situ process control. E.g. the restriction in fossil energy resources and the increasing demand for an optimum efficiency, the control of energy conversion processes are gaining more attention. Also modern additive manufacturing techniques need in-situ process control to obtain well fabricated parts. To fulfil these requirements, the measurement of process parameters, in particular temperature, is necessary in order to operate the processes at its most efficient range, thus producing less waste or gain validated parts. In particular the parameters of the materials used for such high-temperature processes must be known to have sufficient accuracy at the relevant high temperatures in order to optimize the efficiency of the process, to simulate the process in advance to prevent unnecessary waste, and to ensure a safe and efficient process. As most of these processes operate at elevated temperatures, contactless measurement methods, in particular opto-thermal methods are used. The proposed Symposium aims to present basic and applied research regarding optothermal measurement technology (including optical sensors, detectors, radiation thermometers, thermografic devices, etc.) and, in addition, dedicated applications of such opto-thermal technologies in the above mentioned or other fields.

We are particularly interested in (but not limited to) contributions that focus on topics such as:

  - Optothermal sensor technology concepts;
  - Application of optothermal sensor technologies in material science;
  - Application of optothermal sensor technologies in energy technologies;
  - Application of optothermal sensor technologies in process technologies.

Symposium Organizer

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