

## Mid- Infrared Pyrometry based on InAs and InAsSb Photodiodes (a review)

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*An overview of the current state of the world market for industrial pyrometers is presented. The technical characteristics of specialized pyrometers prototypes implemented on the domestic photo-detectors components and developed in the laboratories of the Ioffe Institute (St. Petersburg, Russia) are given.*

*A design of a universal pyrometric sensor based on uncooled one- and two-color photodiode sandwich structures with spectral sensitivity maxima in the mid-IR wavelength (MWIR) spectrum range is proposed.*

*Pyrometers calibration algorithm on the object under study have been worked out, which makes it possible to minimize the error components when measuring the true temperature of an object with unknown / changing values of emissivity.*

*It is shown that pyrometers based on domestic uncooled immersion InAs and InAsSb photodiodes, in terms of the combination of parameters, speed, accuracy, sensitivity, and temperature measurement range, correspond to the best examples of IR radiation thermometers on the world market.*

*Keywords:* pyrometry, IR thermometer, medium-wavelength (MWIR) infrared spectral range, photodiodes based on InAs and InAsSb heterostructures, immersion photodiode, sandwich structure, emissivity, calibration algorithm, two-color pyrometer.

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