REMOTE IDENTIFICATION OF SMALL-SIZE RADIATORS BY THE THERMAL RADIATION OF THEIR STOCHASTIC TOTALITY

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S u m m a r y

A physical possibility of exploiting the relation between the mean value of an arbitrary macroscopic quantity and its variance as a source of a certain physical information about the macroparameters of a stochastic system is established. We consider the basic feasibility for the remote identification of the parameters of small-size thermal radiators which constitute a part of the nebulous stochastic totality ("cloud") of particles noninteracting with one another. The density of thermal radiation energy within the radiator cavity, the total number of radiators in the cloud, anf the size of radiators are fluctuating. Herein, the optical images of individual particles are unavailable. Within the black-body model, it is shown that there is a basic possibility to calculate the averages of the number of radiators in a cloud, temperature, and their size in the certain approximations based on the data on the mean power and the fluctuation power variance for two different wavelengths in an idealized situation.