

# **FAST MULTISPECTRAL RADIOMETRIC METHODS AND INSTRUMENTS FOR ANALYSIS OF BLASTS**

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Blasts and detonations release large amount of energy in short time duration. Some of this energy is released in the form of intense radiation in the whole optical spectrum. In most cases, the study of blasts is mainly based on cameras that document the event in the visible range at very high frame rates. We propose to complement this mode of blast analysis with a fast measurement of the radiation emitted by the blast at different spectral bands simultaneously. A fast multispectral radiometer that operates in the proper spectral bands provides extensive information on the physical processes that govern the blast. This information includes the time dependence of the temperature, aerosol and gas composition of the blast, as well as minute changes in the expansion of the blast – changes that indicate the order of the detonation.

This paper presents the new methodology and instrumentation of fast multispectral blast radiometry and shows analysis of measured explosions that demonstrate the power of this methodology.