

Project Title

Visualizer of supersonic microparticles



Researcher

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Abstract

Measurement and detection of phenomena with the short characteristic time in the combustion engines, the dynamic behavior of various types of projectiles, and the formation and superposition of acoustic waves are inevitable to enter the design, troubleshooting, and manufacturing of advanced industrial products.

Due to the complexity of measurement equipment, few companies operate in this field, e.g., such as NASA, Dantec, LaVision, DLR, and SprayTech.

The high technical knowledge available in this equipment, as well as global sanctions and high prices, makes it difficult and sometimes impossible to provide them in the country.

The reason for the complexity of the present equipment and technique is to achieve the information of flow field with non-intrusive methods unaffected the physics of the phenomenon. The unique solution is the use of optoelectronic instruments. Our product consists of high sensitive spectral detectors, high-power and high-speed spectral illuminators, high precision (about nanoseconds) and high frequency (about kHz) synchronizers, appropriate optical layout for detection, software to analyze the results, and accurate and stable setup, which provides the ability to control and evaluate rapid phenomena.

Arsin group, with a long time history in research and development, considerable costs, and creating the necessary laboratory infrastructure, has been able to produce the equipment in a completely innovative way and with the help of accessible parts. The price paid for the current product is highly competitive with oversea samples and is consistent with the ability to purchase most of the domestic industry and research institutions.

