

# Interferometry in the study of the dynamics of a spark discharge in air in the point-plane gap

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It was found that the spark channel is a cluster of dozens of highly ionized filaments with a micron diameter and a subnanosecond evolution time, which is a promising option for the ignition of oxygen-depleted gaseous fuel due to rapid ionization in the discharge in the filamentation mode. These studies were based on the method of multi-frame laser sensing. The most important task in the experiments is the numerical processing of interferograms of axisymmetric plasma objects. Therefore, it is of great importance for our work to obtain a high-quality interference pattern, that is, the need to find the best type of interferometer for the task at hand and make a very precise adjustment. In this work, it was decided to use an interferometer with the use of an air wedge. A study was conducted of the interferometer of this type. Interference occurs as a result of the superposition of two laser beams reflected from the faces of an air wedge, which is located in the gap between two surfaces of glass 90-degree prisms pressed together. The width of the gap is adjusted by applying layers of adhesive tape. The study is supported by the Russian Science Foundation (grant No.19-79-30086). Theoretical analysis and data processing are funded by the grants of the Russian Foundation for Basic Research (No.20-08-01156) and the President of the Russian Federation (no. MK-703.2020.2).