The design of a laboratory source of electromagnetic radiation

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The purpose of this work is to create a set of methods for numerical and laboratory modeling of astrophysical sources of the phenomenon associated with superluminal sources of electromagnetic radiation. The institutes performing the work—RFNC-VNIIEF and Prokhorov General Physics Institute of the Russian Academy of Sciences—have their own patented technology for generating superluminal polarized currents based on irradiation of a photodiode in the form of an ellipsoid. The paper presents the results of a computational study of the generation and propagation of electromagnetic radiation in the cavity of an elliptical photodiode with laser infection in relation to the problem of modeling the radiation of a radio pulsar.