**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—The Russian Federal Nuclear Center—VNIIEF and Prokhorov General Physics Institute 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.