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THE COMPARISON OF THE MATHEMATICAL MODELS FOR ELECTROMAGNETIC ACCELERATION OF LINER IN THE LABORATORY MAGNETOCUMULATIVE GENERATOR

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In the work the models in two - dimensional approach for the process of electromagnetic acceleration of flat metallic liner in the devices of power sharpening are presented. The models describe a process of acceleration of flat plate with the current in desksides of strip line type. The description of liner launch within the framework of electroconductive incompressible liquid and thermoelastic hard body models is presented. It was constructed and realized the computational algorithms for the numerical simulation both a plate acceleration and its breaking by strong field at magnetic energy cumulating in converging clearance. The purpose is a description of liner dynamics in the laboratory magnetic compressor - an amplifier of power of stand "MOL" (Russian acronym for Magnetic Compression of a Liner) [1]-[3], which work is based on the compression of magnetic flow by the liner, accelerated by electromagnetic forces before the velocity 0.8 km/sec. The examples of the models use and the concrete results of simulation are shown. The calculations have shown the following results. 1. The models able to describe the processes of acceleration and breaking of liner, compression of magnetic field, generation of current in electric circuit. Different approximations give practically alike results on the output pulse of electrical current in liner circuit. 2. The construction of accelerator is capable to give a pulse of current when selecting the features of launch and launcher. On the first stage the choice can be executed by means of the numerical experiment. 3. Description of a liner motion within the framework of electroconductive incompressible liquid and elastic hard body models gives greatly different liner form.

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