

DOI: <https://doi.org/10.15407/techned2016.04.035>

SIMULATING OF THE OPERATION OF VOLTAGE PULSE GENERATOR ON THE ARKADIEV – MARX SCHEME IN MODE WITH PEAKING OF THE PULSE FRONT IN ITS CASCADES AND COMPARISON WITH THE EXPERIMENTAL RESULTS

Journal	Tekhnichna elektrodynamika
Publisher	Institute of Electrodynamics National Academy of Science of Ukraine
ISSN	1607-7970 (print), 2218-1903 (online)
Issue	№ 4, 2016 (July/August)
Pages	35 – 37

Author

M.I. Boyko*

National Technical University “Kharkiv Polytechnic Institute”,
Frunze str., 21, Kharkiv, 61002, Ukraine,
e-mail: boyko@kpi.kharkov.ua ; qnaboy@mail.ru

* ORCID ID : <http://orcid.org/0000-0002-1362-2867>

Abstract

It investigated charge-discharge process of operation of voltage pulse generator on Arkadiev – Marx scheme in mode with peaking of the pulse front in its cascades, both experimentally and by means of simulation in Micro-Cap10. Inductance dischargers and the presence of segments of long lines in the generator circuit are taken into account. The results of the simulation of the process of the formation of the voltage pulses in this mode confirmed the possibility of shortening the pulse rise time on the generator's load to subnanosecond values. The simulation results and oscillograms of voltage pulses on the generator's load have shown that the

proposed scheme simulates the process of its discharge well. References 4, figures 4.

Key words: generator, spark gap, peaking of pulse front in cascades, capacitance of cascade, load, novel technologies.

Received: 03.02.2016

Accepted: 29.04.2016

Published: 21.06.2016

References

1. Boyko M.I. Generator on Arkadiev – Marx scheme in the mode with peaking of pulse front in its cascades. *Tekhnichna Elektrodynamika*. Tematychnyi vypusk Problemy suchasnoi elektrotekhniki. 2000. Part 6. P. 94 – 97. (Rus)
2. Kremnev V.V., Mesyats G.A. Methods of multiplication and transformation of pulses in the high-current electronics. Novosibirsk: Nauka, 1987. 226 p. (Rus)
3. Mesyats G.A. Pulsed power and electronics. Moskva: Nauka, 2004. 704 p. (Rus)
4. Mesyats G.A. Generation of power nanosecond pulses. Moskva: Sovetskoe Radio, 1974. 256 p. (Rus)

[PDF](#)

