Rules for Preparing a Paper to be Submitted for Publication in a Special Thematic Edition of the "Energy" Magazine - "Modern Problems of Power Engineering and Ways of Solving Them"

A paper may be submitted to the editorial office in *Georgian, English* or *Russian* languages. The volume of a paper must not exceed 4 – 6 pages of an A4 format (297 X 210 mm)

A paper for submission must be prepared in MS Word, .docx (.doc) formats. Fonts: Georgian – Sylfaen, English and Russian – Times New Roman. Margins of a paper: upper – 25 mm, lower – 25 mm, on the right – 20 mm, on the left – 20 mm. A text to be done automatically.

The Structure of a Paper

On the first line:

The name of the article in the language of the article.

Fonts: Georgian – Sylfaen, English and Russian – Times New Roman. Size – 11. The text is aligned in the center of the page **(bold)**.

By skipping one line:

The name and surname of the author, **his/her scientific degree and title.**

Fonts: Georgian – Sylfaen, English and Russian – Times New Roman, size – 10, interval – 1; the text is aligned on left side of the page (a name and surname in **Bold**).

The next line:

The name of an organization, its city/town, country and an electronic address (E-mail).

Fonts: Georgian – Sylfaen, English and Russian – Times New Roman, size – 10, interval – 1; the text is aligned on left side of the page (a name and surname in **Bold**).

In case there are two or more authors, each authors and his/her data must be typed in the new line.

By skipping one line:

Annotation: in the language of the article. The volume must not exceed **500** words.

Fonts: Georgian – Sylfaen, English and Russian – Times New Roman, size – 10, interval – 1; the text is aligned on the width of the page ("Annotation" – in **Bold**).

On the next line:

Key words: there must 4 – 5 keywords (there must no more than two compound words).

Fonts: Georgian – Sylfaen, English and Russian – Times New Roman, size – 10, interval – 1; the text is aligned on the width of the page ("key words" – in **Bold**). The first are written an annotation and key words in the language of an article.

For Georgian and Russian articles, skipping a line:

The name of an article, authors, annotation and key words in English language.

Skipping a line after English keywords the content of an article is typed.

For example:

Investigation of symmetry of high series harmonics generated by the electric furnace in the network and development of control system

Badur Tchunashvili, Doctor of Science, Professor,
Georgian Technical University, Tbilisi, Georgia, e-mail: b.chunashvili@gtu.ge
Alexander Petrosyan, PhD, Associate Professor,
Georgian Technical University, Tbilisi, Georgia, e-mail: a.petrosyan@gtu.ge
Archil Gvimradze, doctoral student**,**
Georgian Technical University, Tbilisi, Georgia, e-mail: a.gvimradze@gtu.ge

Annotation. Based on the results of experimental studies, it is substantiated that as a result of electric current load current, high-order harmonics of three different spectral voltages are formed in the network, and it is established that each spectrum is characterized by a pronounced asymmetry. It is argued that the management of each phase of the three-phase obstacle limiting filters needs to be carried out independently. A high-order harmonica limiting device management system has been developed, which is based on. . .
Keywords: electro-arc furnace, electromagnetic interference, limiting filters, three-phase, control system.

The text of an article is written in two columns

Different parts must be separated in the text. For example: **Introduction, The Aim of the Work, Thematic Part, Conclusions, list of the reference literature and used literature in English language (transliteration)**.

Fonts: Georgian – Sylfaen, English and Russian – Times New Roman, size – 10, interval – 1; paragraph gap – 0,75; the text is aligned on the width of the column. The text divisions are given in **Bold**.

Formulas must be typed in Microsoft Equation 3.0.

Graphic Part must be done in *.jpg or *.bmp* *format (300–600dpi). An explanatory note for the graphic part is given below in 10 font: an explanatory note and number of tables are given above them in 10 font.*

For example:

Introduction. The amplitudes of the high-frequency harmonics generated by a power consumer in the power supply network are determined by the parameters of the power elements of the network and the shape of their output current [1]. The shape of the load current of the electric consumer depends on the principle of operation of a separate electrotechnical unit (ETU) integrated in it [2].

…………………………………………………………
…………………………………………………………
…………………………………………………………
……………………………………………………….

Purpose of the work. The aim of the work is to study the distortion of the curve shape of the output currents in the individual phases as a result of the operating modes of high-power single-phase ETDs in the elements of the power supply network and to determine and evaluate the asymmetry of the high-order harmonics generated by them.

…………………………………………………………
…………………………………………………………
…………………………………………………………
……………………………………………………….

Study of the symmetry of the high-order harmonics generated in the network. To optimally conduct experimental studies of electrical consumers, we can divide the integrated ETBs into the following three main groups:

1. Electrotechnical installations, most of which are equipped with thyristor controllers made according to the three-phase Larionov circuit and the control of the load current of each phase is based on the principle of interconnected transverse-pulse regulation (DC electric furnaces,

…………………………………………………………
…………………………………………………………
…………………………………………………………
…………………………………………………………

Fig. 1. "Load Stand" Scheme

………………………………………………………
………………………………………………………
……………………………………………………….
The parameters are calculated by the equation:

$$sin^2\alpha + cos^2\alpha = 1, \qquad (1)$$

Where
$\alpha -$...
....
The results are shown in the table 1.

Table 1.

#	Studied Parameter	Result
1	Network Voltage	380 V
2	Load Current	1500 A
3	Power Factor	0,96

………………………………………………………
………………………………………………………
………………………………………………………
………………………………………………………
……………………………………………………….

Conclusions

1. It is substantiated that the harmonics of each frequency spectrum of the high-order harmonic spectrum generated by the electric current due to the load current of the electric user are characterized by pronounced asymmetry, and it is necessary to take it into account when compiling diagrams and parameters of harmonic suppression filters.

2.………………………………………………………
………………………………………………………
………………………..

References (Literature):

1. Вагин Г.Я., Севостьянов А.А. Электромагнитная совместимость в электроэнергетике: учебник для вузов. Нижний Новгород: НГТУ, 2004. 214с.

2. Yacamini Y. Power Systems Harmonics. – Part 3: Problems Caused by Distorted Supplies/ Power Engineering Journal. October 1995, pp. 233-238.

3. ჭუნაშვილი ბ., ქობალია მ. პეტროსიანი ა., შამფრიანი ნ. ელექტრომომარაგების სისტემის დატვირთვების ფიზიკური მოდელის დამუშავება// ენერგეტიკა: რეგიონული პრობლემები და განვითარების პერსპექტივები. ქუთაისი, 2015. #3 გვ. 6-8.

References (transliterated)

1. Vagin G.YA., Sevost'yanov A.A Elektromagnitnaya sovmestimost' v elektroenergetike: uchebnik dlya vuzov [Electromagnetic compatibility in the electric power industry: university textbook]. Nizhnij Novgorod: NGTU, 2004. 214 p.

2. Yacamini Y. Power Systems Harmonics. – Part 3: Problems Caused by Distorted Supplies/ Power Engineering Journal. October 1995, pp. 233-238.

3. Chunashvili b., qobalia m. petrosiani a., shampriani n. eleqtromomaragebis sistemis datvirTvebis fizikuri modelis damushaveba [Development of a physical model of loads of the power supply system]// energetika: regionuli problemebi da ganviTarebis perspeqtivebi. KuTaisi, 2015. #3 gv. 6-8.