

IJTPE Journal

International Journal on TECHNICAL AND PHYSICAL PROBLEMS OF ENGINEERING (IJTPE)

<http://www.iotpe.com>
<http://www.iotpe.com/ijtpe.html>
ijtpe@iotpe.com, ijtpe0@gmail.com

Issue 27

Volume 8

Number 2

June 2016

Serial No: 0027-0802-0616



Founders and Publishers:

International Organization of IOTPE



Institute of Physics
Azerbaijan National Academy of Sciences
Baku, Azerbaijan
www.science.gov.az/physics



Seraj Higher Education Institute
Tabriz, Iran
www.seraj.ac.ir



Azerbaijan Research Institute of
Energetics and Energy Design
Azerenerji JSC, Baku, Azerbaijan
<http://pei.az>



Taba Elm International Institute
Tabriz, Iran
www.tabaelm.com



Cleaner Production and
Energy Efficiency Center
Baku, Azerbaijan
<http://cpee.az>



Gazi University
Ankara, Turkey
www.gazi.edu.tr



University of Pitesti
Pitesti, Romania
www.upit.ro



Istanbul Technical University
Istanbul, Turkey
www.itu.edu.tr



LUMINA - University of
South-East Europe
Bucharest, Romania
www.lumina.org



Isik University
Istanbul, Turkey
www.isikun.edu.tr



University of the Basque Country
Bilbao, Spain
www.ehu.es



Near East University
Lefkosa, Northern Cyprus
www.neu.edu.tr

IJTPE Journal
International Journal on
TECHNICAL AND PHYSICAL PROBLEMS OF ENGINEERING
(IJTPE)

Published by International Organization of IOTPE

<http://www.iotpe.com>
<http://www.iotpe.com/ijtpe.html>
ijtpe@iotpe.com, ijtpe0@gmail.com

Issue 27

Volume 8

Number 2

Serial No: 0027-0802-0616

June 2016

EDITORS-IN-CHIEF:

- Academician Arif Mamed HASHIMOV
- Prof. Naser MAHDAVI TABATABAEI
- Prof. Nicu BIZON

SCIENTIFIC AND EXECUTIVE SECRETARIES:

- Narges Sadat BOUSHEHRI, M.Sc. - Ali JAFARI, M.Sc. - Ali PASHAEI, Ph.D.

EDITORIAL BOARD:

- Prof. Ahmet AKSEN, Isik University (*Istanbul, Turkey*)
- Assoc. Prof. Adrian BETERINGHE, LUMINA - University of South-East Europe (*Bucharest, Romania*)
- Prof. Javier BILBAO, University of the Basque Country (*Bilbao, Spain*)
- Prof. Nicu BIZON, University of Pitesti (*Pitesti, Romania*)
- Assoc. Prof. Kamil DURSUN, Ostfold University College (*Fredrikstad, Norway*)
- Asst. Prof. Reza EFFATNEJAD, Islamic Azad University, Karaj Branch (*Karaj, Iran*)
- Acad. Arif M. HASHIMOV, Institute of Physics of Azerbaijan National Academy of Sciences (*Baku, Azerbaijan*)
- Asst. Prof. Hojat HATAMI, Seraj Higher Education Institute (*Tabriz, Iran*)
- Prof. Silviu IONITA, University of Pitesti (*Pitesti, Romania*)
- Prof. Yorgo ISTEFANOPULOS, Isik University (*Istanbul, Turkey*)
- Asst. Prof. Derya Ahmet KOCABAS, Istanbul Technical University (*Istanbul, Turkey*)
- Prof. Naser MAHDAVI TABATABAEI, Seraj Higher Education Institute (*Tabriz, Iran*)
- Prof. Rauf N. MEHDIZADEH, Institute of Physics of Azerbaijan National Academy of Sciences (*Baku, Azerbaijan*)
- Assoc. Prof. Ozgur C. OZERDEM, European University of Lefke (*Lefke, Northern Cyprus*)
- Prof. Nariman R. RAHMANOV, Azerbaijan Research Institute of Energetics & Energy Design (*Baku, Azerbaijan*)
- Prof. Ali ROSTAMI, University of Tabriz (*Tabriz, Iran*)
- Prof. Fahreddin M. SADIKOGLU, Near East University (*Lefkosa, Northern Cyprus*)
- Prof. Heidar Ali SHAYANFAR, Iran University of Science and Technology (*Tehran, Iran*)
- Prof. Hossein SHAYEGHI, University of Mohaghegh Ardabili (*Ardabil, Iran*)
- Prof. M. Cengiz TAPLAMACIOGLU, Gazi University (*Ankara, Turkey*)
- Prof. Omer USTA, Istanbul Technical University (*Istanbul, Turkey*)

ADVISORY BOARD:

- Prof. Senol BEKTAS, Near East University (*Lefkosa, Northern Cyprus*)
- Asst. Prof. Robert BELOIU, University of Pitesti (*Pitesti, Romania*)
- Prof. Eugenio BRAVO, University of the Basque Country (*Bilbao, Spain*)
- Prof. Aysen DEMIROREN, Istanbul Technical University (*Istanbul, Turkey*)
- Dr. Lami KAYA, Sahara Group (*Istanbul, Turkey*)
- Prof. Dominic B.O. KONDITI, Multimedia University College of Kenya (*Nairobi, Kenya*)
- Prof. Ires ISKENDER, Gazi University (*Ankara, Turkey*)
- Prof. Anvar T. KHUDIEV, Institute of Petrochemical Processes of Azerbaijan National Academy of Sciences (*Baku, Azerbaijan*)
- Asst. Prof. Ahmet NAYIR, Fatih University (*Istanbul, Turkey*)
- Asst. Prof. Kamil B. QURBANOV, Institute of Physics of Azerbaijan National Academy of Sciences (*Baku, Azerbaijan*)

SCIENTIFIC BOARD:

- Ahrabian, Gh., Asst. Prof. (*Iran*)
Akcam, N., Asst. Prof. (*Turkey*)
Aksen, A., Prof. (*Turkey*)
Albizu, I., Prof. (*Spain*)
Alizade, P., Prof. (*Turkey*)
Ardehali, M.M., Prof. (*Iran*)
Ari, M., Assoc. Prof. (*Turkey*)
Arntsen, E. (*Norway*)
Aydemir, T.M. (*Turkey*)
Banan, Kh., Asst. Prof. (*Iran*)
Bay, O.F., Prof. (*Turkey*)
Behjat, V., Asst. Prof. (*Iran*)
Bektaş, S., Prof. (*Northern Cyprus*)
Beloiu, R., Asst. Prof. (*Romania*)
Beteringhe, A., Assoc. Prof. (*Romania*)
Bilbao, J., Prof. (*Spain*)
Bizon, N., Prof. (*Romania*)
Boushehri, N.S. (*Iran*)
Bravo, E., Prof. (*Spain*)
Buigues, G. (*Spain*)
Chirlesan, D., Assoc. Prof. (*Romania*)
Colak, I., Prof. (*Turkey*)
Constantinescu, L., Asst. Prof. (*Romania*)
Costea, M., Dr. (*Romania*)
Darabi, A., Prof. (*Iran*)
Demiroren, A., Prof. (*Turkey*)
Dincer, M.S., Prof. (*Turkey*)
Dursun, K., Assoc. Prof. (*Norway*)
Effatnejad, R., Asst. Prof. (*Iran*)
Eguia, P., Prof. (*Spain*)
Eke, I., Dr. (*Turkey*)
Faiz, J., Prof. (*Iran*)
Farsadi, M., Assoc. Prof. (*Iran*)
Farsangi, M.M., Assoc. Prof. (*Iran*)
Feizi, M.R., Prof. (*Iran*)
Fianu, S., Asst. Prof. (*Romania*)
Forrisdal, O.K., Assoc. Prof. (*Norway*)
Ghanbari, E., Prof. (*Iran*)
Gholami, A., Prof. (*Iran*)
Hardalac, F., Dr. (*Turkey*)
Hasanov, E.R., Prof. (*Azerbaijan*)
Hasanova, S.I., Asst. Prof. (*Azerbaijan*)
Hashimov, A.M., Acad. (*Azerbaijan*)
Hatami, H., Asst. Prof. (*Iran*)
Hernandez, J.R., Prof. (*Spain*)
Huseynov, A., Prof. (*Azerbaijan*)
Ionita, S., Prof. (*Romania*)
Iordache, M. (*Romania*)
Iskender, I., Prof. (*Turkey*)
Istefanopoulos, Y., Prof. (*Turkey*)
Izykowski, J., Prof. (*Poland*)
Jadid, Sh., Prof. (*Iran*)
Jafari, A. (*Iran*)
Kalantar, M., Prof. (*Iran*)
Kaya, L., Dr. (*Turkey*)
Kazemi, A., Assoc. Prof. (*Iran*)
Kenarangui, R., Prof. (*USA*)
Khalin, M.V., Prof. (*Russia*)
Khalina, T.M., Prof. (*Russia*)
Khudiev, A.T., Prof. (*Azerbaijan*)
Kocaarslan, I., Prof. (*Turkey*)
Kocabas, D.A., Asst. Prof. (*Turkey*)
Konditi, D.B.O., Prof. (*Kenya*)
Kuznetsov, V., Prof. (*Ukraine*)
Lefter, E. (*Romania*)
Lita, I. (*Romania*)
Mamedov, N.A., Prof. (*Azerbaijan*)
Mehdiyev, T.R., Prof. (*Azerbaijan*)
Mehdizadeh, R.N., Prof. (*Azerbaijan*)
Mordt, H., Assoc. Prof. (*Norway*)
Mustafayev, R.I., Prof. (*Azerbaijan*)
Nasirzadeh, N., Asst. Prof. (*Iran*)
Nayir, A., Asst. Prof. (*Turkey*)
Oprescu, B., Prof. (*Romania*)
Oproescu, M., Asst. Prof. (*Romania*)
Oraee, H., Prof. (*Iran*)
Ozerdem, O.C., Assoc. Prof. (*Northern Cyprus*)
Pashaei, A. (*Iran*)
Pavlyuchenko, D.A., Prof. (*Russia*)
Qurbanov, K.B., Assoc. Prof. (*Azerbaijan*)
Rahmanov, N.R., Prof. (*Azerbaijan*)
Ramos, J.A. (*Spain*)
Rosolowski, E., Prof. (*Poland*)
Rostami, A., Prof. (*Iran*)
Rzayev, F.T., Dr. (*Azerbaijan*)
Sadikoglu, F.M., Prof. (*Northern Cyprus*)
Sazli, M.H., Assoc. Prof. (*Turkey*)
Sefa, I., Dr. (*Turkey*)
Senol, M.A., Dr. (*Turkey*)
Serban, G., Prof. (*Romania*)
Sharifian, M.B.B., Prof. (*Iran*)
Shayanfar, H.A., Prof. (*Iran*)
Shayeghi, H., Assoc. Prof. (*Iran*)
Shidlovsky, A., Prof. (*Ukraine*)
Sima, I., Prof. (*Romania*)
Stanescu, C., Prof. (*Romania*)
Tabatabaei, Naser M., Prof. (*Iran*)
Tabatabaei, Nejat M., Asst. Prof. (*Germany*)
Taghizadegan, N., Dr. (*Iran*)
Taplamacioglu, M.C., Prof. (*Turkey*)
Ursu, D., Dr. (*Romania*)
Usta, O., Prof. (*Turkey*)
Varela, C., Prof. (*Spain*)
Vishtibeyev, A. Prof. (*Russia*)
Yalcinoz, T., Prof. (*Turkey*)

EDITORIAL NOTE

We are pleased to present International Journal on "Technical and Physical Problems of Engineering" (IJTPE) in English and electronic print published seasonal periodically by the partners of International Organization on "Technical and Physical Problems of Engineering" (IOTPE) including Institute of Physics of Azerbaijan National Academy of Sciences (Baku, Azerbaijan) and Azerbaijan Research Institute of Energetics and Energy Design (Azerenerji JSC, Baku, Azerbaijan), Cleaner Production and Energy Efficiency Center (Baku, Azerbaijan), Seraj Higher Education Institute (Tabriz, Iran), Taba Elm International Institute (Tabriz, Iran), Gazi University (Ankara, Turkey), Istanbul Technical University (Istanbul, Turkey), Isik University (Istanbul, Turkey), University of Pitesti (Pitesti, Romania), LUMINA - University of South-East Europe (Bucharest, Romania), University of the Basque Country (Bilbao, Spain), Near East University (Lefkosa, Northern Cyprus) and Ostfold University College (Fredrikstad, Norway).

The IOTPE organization is a scientific association, founder and holder of International Conferences on "Technical and Physical Problems of Power Engineering" (ICTPE) have been held in 2002 (Baku, Azerbaijan), 2004 (Tabriz, Iran), 2006 (Ankara, Turkey), 2008 (Pitesti, Romania), 2009 (Bilbao, Spain), 2010 (Tabriz, Iran), 2011 (Lefkosa, Northern Cyprus), and 2012 (Fredrikstad, Norway).

Considering the acquired experience in the eighth past conferences, *International Conference on "Technical and Physical Problems of Power Engineering" (ICTPE)* and to promote the quality and quantity of the ICTPE Conferences holding, the ICTPE Conferences name and topics are improved to *International Conference on "Technical and Physical Problems of Electrical Engineering" (ICTPE)* in the ninth ICTPE-2013 Conference to cover subjects in all fields and topics of Electrical Engineering and have been held in 2013 (Istanbul, Turkey), 2014 (Baku, Azerbaijan), 2015 (Bucharest, Romania), and also to be held in the next editions of 2016 (Bilbao, Spain) and 2017 (Van, Turkey).

The IOTPE organization is generally managing and performing a set of scientific-executive affairs to holding International Conference of ICTPE, publishing International Journal of IJTPE and directing International Enterprise of IETPE.

Successful organizing and holding ICTPE conference and publishing IJTPE journal indicates close friendship and scientific collaboration of the scientists and researchers of member countries in engineering field development between the countries. The importance of holding ICTPE conference and publishing IJTPE journal are mutual understanding and recognition between the

organizer countries through scientific, social and cultural development where yields increasing international cooperation in scientific areas.

Furthermore, the importance subjects of ICTPE conference and IJTPE journal are related to the opportunity for researches and scientists from different countries to clarify and discuss the latest and mutual research achievements and improvements as well as generalization of the internationally obtained results in the area of engineering and new technologies.

The conducting of ICTPE conference and IJTPE journal are based on important principle of the cooperative relationship between science and industry. This relationship is a basis for the activity of contemporary engineering companies. It is well known that important technical advance is possible only due to achievements of fundamental science.

Publishing IJTPE journal is getting increasing importance for cooperation of researchers and scientific centers of different countries. We strongly believe the journal provides the establishing scientific relationships and also increase the cooperation of east and west countries on the subject of engineering fields and applying the new technologies on solving technical and physical problems.

By the mean of IJTPE journal publication, the cooperation with the partners from the involved countries and also all of the worlds will be fostered. It is the main objective to enhance the level of multilateral exchanges, the involvement of authors in developing and improving the scientific research.

It is our honor that the IJTPE journal is registered and cited by the Norwegian Association of Higher Education Institutions (UHR) and the Norwegian Social Science Data Services (NSD) on behalf of the Norwegian Ministry of Education and Research since 2013, and the IOTPE is an Associate Member of International Association of Science Parks and Areas of Innovation (IASP) since 2015.

We will do our best to disseminate the journal's results and forward to the possible technological transfer of the accumulated knowledge of the scientific contributions of the authors.

Finally, we wish to express our gratefulness to all the authors and scientists from all over the world who have scientific reports in preparing the transactions published in the journal.

Editors-in-Chief

Academician Arif Mamed HASHIMOV

Prof. Naser MAHDAVI TABATABAEI

Prof. Nicu BIZON

NO	CONTENTS	PAGES
1	RENEWABLE HYDRO-WIND POWER SYSTEM FOR SMALL ISLANDS: THE EL HIERRO CASE F. Cabrera Quintero, J.F. Medina Padron, E.J. Medina Dominguez, M.A. Artiles Santana	1-7
2	APPLICATION OF INTEGRATED OPERATIONS IN OIL AND GAS INDUSTRY TO MAKE PLANT WORK PROCESS SAFER, EASIER AND FASTER T.H. Dostalizade, M.E. Huseynov, E.I. Iskandarov	8-12
3	CALCULATION OF ELECTRICAL CONDUCTIVITY OF ENERGY SAVING NANOSTRUCTURED COMPOSITE ELECTRIC HEATERS A.B. Dorosh, T.M. Khalina, M.V. Khalin, S.A. Huseynova	13-17
4	CONTRIBUTION AND ADVANCES OF THE KEY PERFORMANCE INDICATORS IN HUMAN RESOURCES MANAGEMENT N.K. Almasova-Huseynova, N.A. Babayeva, R.B. Rustamov	18-22
5	MONITORING SYSTEM DEVELOPMENT FOR ORGANIZATION MOTIVATION N.E. Samadova, R.B. Rustamov	23-26
6	A NEW METHOD FOR FAULT DIAGNOSIS BASED ON FAULT CURRENT MAGNITUDE A. Hadaeghi, N. Navran, H. Akhavein Ansari	27-31
7	METHODS AND MODELS OF OPTIMIZATION OF TRANSPORT LOGISTICS A.A. Allahverdiyev	32-39
8	DVR CONTROL FOR BALANCED AND UNBALANCED SAG MITIGATION M.B. Tasre, G.M. Dhole, S.S. Jadhao, R.B. Sharma	40-45
9	WIDE BAND SQUARE PATCH MICROSTRIP ANTENNA DESIGN FOR WLAN AND WiMAX APPLICATIONS S.K. Gemnani, B.S. Chowdhry	46-52

* The issues of IJTPE Journal are registered and cited by:



- 1- The Norwegian Association of Higher Education Institutions (UHR) and the Norwegian Social Science Data Services (NSD), www.nsd.no/english, on behalf of the **Norwegian Ministry of Education and Research** since 2013.

Indexing address:

https://dbh.nsd.uib.no/publiseringskanaler/KanalTidsskriftInfo?id=480511&bibsys=0&request_locale=en



- 2- **Google Scholar**, <http://scholar.google.com/>, for searching, exploring, locating, keeping, checking and citing the publications and authors through the libraries and on the web since 2013.

Search for: IJTPE

http://scholar.google.com/scholar?hl=en&q=IJTPE&btnG=&as_sdt=1%2C5&as_sdtp=



** The **International Organization of IOTPE** including International Conference of ICTPE, International Journal of IJTPE and International Enterprise of IETPE is an Associate Member of **International Association of Science Parks and Areas of Innovation (IASP)** since 2015.

Linking address:

<http://www.iasp.ws>

Our members → By country → Iran

Associate members

International Organization on Technical and Physical
Problems of Engineering (IOTPE)