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HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
KARYA ILMIAH : JURNAL ILMIAH

Judul Jurnal Ilmiah (Artikel)	:	Linking Chemical and Physical Parameters of A Coastal Water Ecosystem with Macrobenthic Assemblages to Assess Environmental Disturbance
Jumlah Penulis	:	Sapto P. Putro**, Widowati,** Anthony Cheshire/3 orang
Status Pengusul	:	~~Penulis pertama~~/Penulis anggota
Identitas Jurnal Ilmiah	:	a. Nama Jurnal : Malaysian Journal of Fundamental and Applied Sciences (MJFAS)
		b. Nomor ISSN : ISSN: 2289-5981. e-ISSN: 2289-599X.
		c. Volume, nomor, bulan tahun : Vol. 14, No. 1, 2018, pp. 78-82
		d. Penerbit : UTM Press, Universiti Teknologi Malaysia
		e. DOI artikel (jika ada) : 10.1088/1742-6596/1025/1/012088
		f. Alamat web jurnal : https://mjfas.utm.my/index.php/mjfas/article/view/1048
ARTIKEL	:	https://mjfas.utm.my/index.php/mjfas/article/view/1048/pdf
		g. Terindeks Clarivate Analytics (Thomson Reuters)/Google Scholar/sertifikat CREAM2018 oleh Kementerian Pendidikan Malaysia: h-index: 12; i10-index:23 https://mjfas.utm.my/index.php/mjfas/about/submissions#onlineSubmissions

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c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	6			5.6
d. Kelengkapan unsur dan kualitas terbitan/jurnal (30%)	6			5.5
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Nilai Pengusul = 40% x 1/2x18.88 = 3.78				

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1. **Kesesuaian dan kelengkapan unsur isi paper:** Penulisan sudah sesuai dengan ‘ Guide for Author’’ (Title, Introduction, Materials and method, Results and Discussion, Conclusion, Acknowledgement, Reference) dengan system Author. Beberapa referensi ditulis belum sesuai dengan panduan/ protocol (skor=2).
2. **Ruang lingkup dan kedalaman pembahasan:**
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3. **Kecukupan dan kemutakhiran data/informasi dan metodologi:**
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   Artikel dipublikasikan pada jurnal “Malaysian Journal of Fundamental and Applied Sciences (MJFAS), Indonesia” tahun 2018, Vol. 14 No. 1 pp 78-82 Kualitas terbitan baik terindeks Clarivate Analytics (formerly Thomson Reuters) dan Google Scholar. (skor= 5.5)

Semarang, Agustus 2018
Reviewer 1

Prof. Dr. Ir. Ambariyanto, M.Sc.
NIP. 196104131988031002
Unit kerja : FPIK Undip

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c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	6			5.5
d. Kelengkapan unsur dan kualitas terbitan/jurnal (30%)	6			5.75
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Semarang, Agustus 2018

Prof. Drs. Ocky Karna Radjasa, M.Sc., Ph.D.
NIP. 196510291990031001
Unit kerja : FPIK Undip

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b. Ruang lingkup dan kedalaman pembahasan (30%)	5.78	6	5.89
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	5.6	5.5	5.55
d. Kelengkapan unsur dan kualitas terbitan/jurnal (30%)	5.5	5.75	5.62
Total = (100%)	18.88	19.25	19.06
Nilai Pengusul=40%x1/2	**3.77**	**3.85**	**3.81**

Semarang, Agustus 2018

Reviewer 1

Prof. Dr. Ir. Ambariyanto, M.Sc.
NIP. 196104131988031002
Unit kerja : FPIK Undip

Reviewer 2

Prof. Drs. Ocky Karna Radjasa, M.Sc., Ph.D.
NIP. 196510291990031001
Unit kerja : FPIK Undip

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ISSN / eISSN:	2289-5981 / 2289-599X
Categories:	MULTIDISCIPLINARY | MULTIDISCIPLINARY SCIENCES
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MJFAS MALAYSIAN JOURNAL OF FUNDAMENTAL AND APPLIED SCIENCES
PRINT ISSN: 2289-5981 | ONLINE ISSN: 2289-599X

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MJFAS MALAYSIAN JOURNAL OF FUNDAMENTAL AND APPLIED SCIENCES
PRINT ISSN: 2289-5981 | ONLINE ISSN: 2289-599X

Vol 14, No 1 (2018)

January - March

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MJFAS MALAYSIAN JOURNAL OF FUNDAMENTAL AND APPLIED SCIENCES
PRINT ISSN: 2289-5981 | ONLINE ISSN: 2289-599X

RESEARCH ARTICLE

Max-min Rodeg index of bridge graphs and fullerenes

Özge Çolakoğlu Havare*

Department of Mathematics, Faculty of Science and Arts, Mersin University, 33343, Mersin, Turkey

* *Corresponding author: ozgecolakoglu@mersin.edu.tr*

Article history
Submitted 17 August 2017
Revised 22 October 2017
Accepted 6 December 2017
Published Online 8 Mac 2018

Abstract

In this study, it is presented exact expressions for the Max-min rodeg index of bridge graphs. Moreover, the Max-min rodeg index of fullerenes and link of fullerenes is computed. The Max-min rodeg index (Mmsde) which is vertex degree-based topological index has attracted attention and gained popularity. This index is defined as $\sum \max\{\sqrt{\sqrt{du}},\sqrt{dv}\}/\min\{\sqrt{\sqrt{du}},\sqrt{dv}\}$. A fullerene graph is a cubic planar graph whose faces are pentagons and hexagons.

***Keywords*:** Topological index, max-min Rodeg index, fullerenes, link of two graphs, bridge graphs

INTRODUCTION

Chemical graph theory is a branch of mathematical chemistry which deals with the nontrivial applications of graph theory to solve molecular problems. In general, a graph is used to represent a molecule by considering the atoms as the vertices of the graph and the molecular bonds as the edges. The main goal of chemical graph theory is to use algebraic invariants to reduce the topological structure of a molecule to a single number which characterizes either energy of the molecule as a whole or its orbital, its molecular branching, structural fragments, and its electronic structures, among others.

A molecular graph G=(V(G),E(G)) is a simple graph having n=|V(G)| nodes and m=|E(G)| edges. The nodes $v_i \in V(G)$ represent non-hydrogen atoms and the edges $v_iv_j \in E(G)$ represent covalent bonds between the corresponding atoms. In particular, hydrocarbons are formed only by carbon and hydrogen atoms and their molecular graphs represent the carbon skeleton of the molecule. Note that hydrogen atoms are often omitted.

A graph-based molecular descriptor or graph invariant, commonly known as topological index, is a graph-theoretic invariant characterizing numerically the topological structure of a molecule (Gutman, 1990). These graph theoretic invariants are expected to correlate with physical observables measures by experiments in a way that theoretical predictions can be used to gain chemical insights even for not yet existing molecules.

Topological indices are used for studying the properties of molecules such as structure-property relationship (QSPR), structure-activity relationship (QSAR) and structural design in chemistry, nanotechnology
and pharmacology. Its main role is to work as a numerical molecular descriptor in QSAR/QSPR models (Shafiei, 2015; Vukičević, 2011).

The first topological index is the Wiener index which was introduced by Harold Wiener in 1947 and used it to determine physical properties of types of alkenes known as paraffin (Wiener, 1947). It was used for the correlation of measured properties of molecules with their structural features by H. Wiener.

In 2010, D. Vukicevic and M. Gasperov introduced Adriatic indices that obtained by the analyses well known indices such as Randic
and Wiener index and QSAR and QSPR studies of them have been performed (Vukičević and Gašperov, 2010). It is defined three classes of Adriatic descriptors. One of these descriptors is the Discrete Adriatic descriptors which consist of 148 descriptors. They have very good predictive properties. So, many scientists studied these indexes. One of the Discrete Adriatic descriptors is max-min rodeg index. Max-min rodeg index is defined as

$$Mm_{sde}(G) = \sum_{uv\in E(G)} \frac{\max\left\{\sqrt{d_u},\sqrt{d_v}\right\}}{\min\left\{\sqrt{d_u},\sqrt{d_v}\right\}}\Sigma = \sum_{uv\in E(G)} \sqrt{\frac{\max\{d_u,d_v\}}{\min\{d_u,d_v\}}}$$

where d_u is denoted as the degree of vertex u (Vukičević, 2010; Vukičević andGašperov, 2010). This index give the best predictor for enthalpy of vaporization and standard enthalpy of vaporization in the set of octane isomers and also for log water activity coefficient in the set of polychlorobiphenyles. We encourage reader to references (Azari *et al.*, 2013; De, 2017; Ghorbani and Hosseinzadeh, 2010; Ghorbani and Khaksari, 2017; Gutman, 1990; Iranmanesh and Zeraatkar, 2011; Kanna *et al.*, 2017; Mansour and Schork, 2009a, 2009b, 2010; Nazir *et al.*, 2017).

To be a closed shape, a fullerene should exactly have 12 pentagon sides, but the number of hexagon sides can be extremely variable. Fullerenes were discovered in 1985 by Kroto *et al*., (1985) and are named after Richard Buckminster Fuller. Fullerenes are molecules in the form of cage-like polyhedra, consisting only of carbon atoms. Moreover, a fullerene graph is a cubic planar 3-regular graph whose faces are 12 pentagons only and F_6 hexagons. Therefore the general formula for carbon fullerenes can be given $C_{\{20+2F_6\}}$. The general formula for carbon fullerenes is $C_{\{20+2F_6\}}$ ($F_6 \geq 0$ and $F_6 \neq 1$) with the number of hexagonal faces $F_6=20$ for C_{60}. The smallest possible fullerene is C_{20} ($F_6=0$) and the most famous fullerene molecule is C_{60} with 12 pentagons and 20 hexagons. Suppose G is a fullerene

MJFAS MALAYSIAN JOURNAL OF FUNDAMENTAL AND APPLIED SCIENCES
PRINT ISSN: 2289-5981 | ONLINE ISSN: 2289-599X

RESEARCH ARTICLE

A mathematical study of magnetohydrodynamic Casson fluid via special functions with heat and mass transfer embedded in porous plate

Kashif Ali Abro [a,*], Hina Saeed Shaikh [b], Norzieha Mustapha [c], Ilyas Khan [d], Asifa Tassaddiq [e]

[a] *Department of Basic Sciences and Related Studies, Mehran University of Engineering and Technology, Jamshoro, Pakistan*
[b] *Federal Government College, Karachi, Pakistan*
[c] *Fakulti Sains Komputer dan Matematik, Universiti Teknologi MARA Cawangan Kelantan, Bukit Ilmu, 18500 Machang, Kelantan*
[d] *Basic Engineering Sciences Department, College of Engineering Majmaah University, Saudi Arabia*
[e] *College of Computer and Information Sciences, Majmaah University, Majmaah 11952, Saudi Arabia*

**Corresponding author: kashif.abro@faculty.muet.edu.pk*

Article history
Submitted 21 August 2017
Revised 19 October 2017
Accepted 6 December 2017
Published Online 8 Mac 2018

Abstract

This article is proposed to investigate the impacts of heat and mass transfer in magnetohydrodynamic Casson fluid embedded in porous medium. The generalized solutions have been traced out for the temperature distribution, mass concentration and velocity profiles under the existence and non-existence of transverse magnetic field, permeability and porosity. The corresponding solutions of temperature distribution and mass concentration, velocity profiles are expressed in terms of newly defined generalized Robotnov-Hartley function, wright function and Mittage-Leffler function respectively. All the corresponding solutions fulfill necessary conditions (initial, natural and boundary conditions) as well. Caputo Fractionalized solutions have been converted for ordinary solutions by substituting $\zeta = 1$. Some similar solutions for the temperature distribution, mass concentration and velocity profiles have been particularized form generalized solutions. Owing to the rheology of problem, graphical illustrations of distinct parameters are discussed in detail by depicting figures using Mathcad software (15).

***Keywords*:** Special functions, Caputo Fractional differentiation, rheological impacts and graphical illustrations.

INTRODUCTION

Due to abundant applications of non-Newtonian fluids in technological development and advancement, many engineers and scientists are working on distinct investigations such as cosmetics, pharmaceuticals, chemicals, oil, gas, food and several others. Even non-Newtonian fluids are not easy to tackle in comparison with Newtonian fluids. This happens due to the non-availability of at least single constitutive equation that can give explanations of all characteristics in non-Newtonian fluids. In order to have the explanations of all characteristics of non-Newtonian models have been presented for instance, Walters-B (Khan *et al.,* 2014), Oldroyd-B (Khan *et al.,* 2012), Jeffrey (Qasim *et al.,* 2013), Bingham plastic (Kleppe *et al.,* 1972), power law (Olajuwon, 2009), Brinkman type (Zakaria *et al.,* 2013), viscoplastic (Hassan *et al.,* 2013), Maxwell (Kashif *et al.,* 2015; Kashif *et al.,* 2015, second grade (Kashif, 2016). In continuation, the most popular model of non-Newtonian fluid is known as casson model (Casson, 1959). Casson model is used in pigment oil suspensions for the predictions of behavior of fluid flows. This model is highly configured by several researchers in distinct situations of fluid flows. (Malik *et al.,* 2013) have investigated vertical exponentially stretching cylinder for boundary layer flow of Casson fluid (Malik *et al.,* 2013). Venkatesan *et al*. analyzed stenosed narrow arteries for blood rheology for Casson fluid under mathematical study (Venkatesan, 2013). Taza Gul *et al*. have perused MHD third grade fluid under assumptions of no slip boundary condition for vertical belt with thin flim flow (Gul *et al.,* 2014). In this paper they investigated analytical expression for energy and momentum equations by employing Adomian decomposition method. Sidra *et al.,* 2014 analyzed two vertical plates for unsteady second grade fluid under assumptions of oscillatory boundary and condition of magnetic field (Abid *et al.,* 2014). They explored the exact solutions for temperature distribution and velocity field from the set of non-linear partial differential equations. It is focused point in their paper that they emphasized the thermal effects on the vertical plates. The generalized third grade fluid for Poiseuille and Couette flows in the presence and absence of magnetohydrodynamics has been led by Rasheed and *et al*. (Rasheed *et al.,* 2014). They considered the flow between two parallel plates and trace out the non-linear partial differential equation using Homotopy Perturbation Method. Kashif analyzed second grade fluid in porous medium for oscillations of plate (Muzaffar *et al.,* 2017). In continuation, he extended the work of (Muzaffar *et al.,* 2017) for fractionalized viscoelastic fluid under influences of magnetic field and expressed the general solutions in term of generalized Fox-H function (Kashif *et al.,* 2016). Fractional differential equation has become a fundamental tool for the modeling of various physical phenomenon's, for instance seepage flow in porous