

**LEMBAR  
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*  
KARYA ILMIAH : PROSIDING**

Judul Karya Ilmiah : Statistical Analysis of Reducing Biochemical Oxygen Demand (BOD) on Industrial Rubber Wastewater using Dielectric Barrier Discharge Plasma

Jumlah Penulis : 3 Orang (**Abdul Syakur**, B. Zaman, Nurmaliakasih DY)

Status Pengusul : Penulis Pertama

Identitas Prosiding : a. Judul Prosiding : IOP Conference Series: Materials Science and Engineering, IAES International Conference on Electrical Engineering, Computer Science and Informatics

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	Reviewer I	Reviewer II	
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b. Ruang lingkup dan kedalaman pembahasan (30%)	7,00	7,00	7,00
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	7,00	7,00	7,00
d. Kelengkapan unsur dan kualitas terbitan/prosiding(30%)	7,50	6,50	7,00
<b>Total = (100%)</b>	<b>24,00</b>	<b>23,00</b>	<b>23,50</b>
<b>Nilai Pengusul = (60% x 23,50) = 14,10</b>			

Semarang, 12 Januari 2019

Reviewer 2



Dr. Wahyudi, S.T., M.T.  
NIP. 196906121994031001  
Unit Kerja : Teknik Elektro FT UNDIP

Reviewer 1



Mohammad Facta, ST, MT, Ph.D  
NIP. 197106161999031003  
Unit Kerja : Teknik Elektro FT UNDIP

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	Internasional	Nasional	
	<input type="text" value="30"/>	<input type="text"/>	
a. Kelengkapan unsur isi prosiding (10%)	3,00		2,50
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c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	9,00		7,00
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**Catatan Penilaian Paper oleh Reviewer :**

**1. Kesesuaian dan kelengkapan unsur isi paper:**

Makalah telah ditulis sesuai dengan penelitian dan prosiding IOP conference series yang memuat introduction fundamental thesis, experimented set up, result and discussion dan referensi yang relevan. (Nilai=2,50)

**2. Ruang lingkup dan kedalaman pembahasan:**

Ruang lingkup dan pembahasan paper membahas aplikasi salah satu teori dalam tegangan tinggi yakni *Dielectric Discharge Plasma* dalam mengurangi limbah lingkungan. Hal ini sesuai bidang penulis. Ada 10 referensi namun hanya 3 yang kurang dari 5 tahun. (Nilai =7,00)

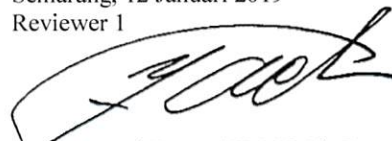
**3. Kecukupan dan kemutakhiran data/informasi dan metodologi:**

Data hasil pengukuran menggunakan *Dielectric Discharge Plasma* yang diterapkan berbasis tegangan tinggi AC dan seringkali dipakai sebagai pembangkit plasma pengurai limbah terdapat kebaruan. Metodologi sudah banyak digunakan. (Nilai = 7,00).

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Semarang, 12 Januari 2019  
Reviewer 1



Mochammad Facta, ST, MT, Ph.D  
NIP. 197106161999031003  
Unit Kerja : Teknik Elektro FT UNDIP

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d. Kelengkapan unsur dan kualitas terbitan/prosiding(30%)	9,00		6,50
<b>Total = (100%)</b>	<b>30,00</b>		<b>23,00</b>
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- Ruang lingkup dan kedalaman pembahasan:**  
Ruang lingkup dan pembahasan materi meliputi semua yang direncanakan, menggunakan analisis statistik yang cukup mendalam (Nilai = 7,00)
- Kecukupan dan kemutakhiran data/informasi dan metodologi:**  
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Reviewer 2

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NIP. 196906121994031001  
Unit Kerja : Teknik Elektro FT UNDIP



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Volume 190, Issue 1, 19 April 2017, Article number 012026

3rd IAES International Conference on Electrical Engineering, Computer Science and Informatics, EECSI 2016; Semarang; Indonesia; 23 November 2016 through 25 November 2016; Code 127356

## Statistical Analysis of Reducing Biochemical Oxygen Demand (BOD) on Industrial Rubber Wastewater using Dielectric Barrier Discharge Plasma (Conference Paper) (Open Access)

Syakur, A.<sup>a</sup> ✉, Zaman, B.<sup>b</sup>, Nurmaliakasih, D.Y.<sup>b</sup>

<sup>a</sup>Department of Electrical Engineering, Faculty of Engineering, Universitas Diponegoro, Indonesia

<sup>b</sup>Department of Environmental Engineering, Faculty of Engineering, Universitas Diponegoro, Jln. Prof. Soedarto SH Tembalang, Semarang, Indonesia

### Abstract

View references (11)

Dielectric Barrier Discharge plasma (DBD) is one of type non-thermal plasma (non-equilibrium plasma) or can be referred to as cold plasma. In this research, DBD plasma be utilized to reduce organic compounds like Biochemical oxygen demand in the wastewater rubber processing. In the environment field DBD plasma has been used as a treatment for reducing air pollutants such as gas CO<sub>x</sub>, NO<sub>x</sub> and HC. In addition DBD plasma have been developed to processed wastewater as an alternative technology in wastewater treatment. DBD plasma appears when the electrode is given a high voltage so that, it will form electric field in the area of the electrodes which allows the ionization and the presence of high-energy electrons in the area. The presence of these electrons will ionize molecules of H<sub>2</sub>O into active species such as OH•, H• and H<sub>2</sub>O<sub>2</sub>. The active species that can oxidize into CO<sub>2</sub> and H<sub>2</sub>O so, BOD that can be degraded. In this research for wastewater treatment used high voltage are 10kV, 11kV, 12kV and 13kV and variations of processing time for 5, 10, 15, 20, and 25 (minutes). By increasing the voltage and extend the contact time then the speed variation of electrons to ionize the greater and more active species to be formed to degrade the pollutants to the maximum. This research used quantitative analysis with statistical analysis using SPSS software. © Published under licence by IOP Publishing Ltd.

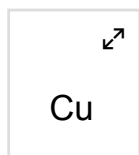
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# **IAES International Conference on Electrical Engineering, Computer Science and Informatics (EECSI 2016)**

IOP Conference Series: Materials Science and Engineering  
Volume 190

Semarang, Indonesia  
23 – 25 November 2016

## **Editors:**

<b>Munawar A. Riyadi</b>	<b>Tole Sutikno</b>
<b>Sri Arttini Dwi Prasetyowati</b>	<b>Deris Stiawan</b>

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## Foreword from Chair of EECSI 2016

In the name of Allah, the Gracious Most Merciful

It is great pleasure to welcome out colleagues from all over the world to attend 3<sup>rd</sup> International Conference on Electrical Engineering, Computer Science, and Informatics (EECSI 2016) Conference in Semarang City, Central Java, Indonesia

EECSI 2016 provides a forum for researchers, academicians, professionals, and students from various engineering fields and cross-disciplinary working or interested in the field of Electrical Engineering, Computer Science, and Informatics especially: Power Engineering, Power Systems and Protection; Electric Power Transmission and Distribution; High Voltage Engineering and Insulation Technology; Renewable Energy Sources, Smart-grids Technologies & Applications; Energy: Policy, Security, Infrastructure, Growth and Economics; Power Electronics and Drives; Control, Automation, Instrumentation and Robotics; Information, Internet of Things and Internet Technologies; Electromagnetic Waves and Field; Circuits and Systems; Semiconductors and Applications; Microelectronics and Electronics Technologies; Electronics and Photonics; Wireless Telecommunications and Networking; Remote Sensing and Data Interpretation; Signal, Image, Video & Multimedia Processing; ICT for Electrical and Electronics Applications; Computer Network & Information Security; High Performance Computing and Communication; Databases, Data Mining and Software Engineering.

Organizing such an prestigious conference was incredibly challenging and would have been impossible without our outstanding committee, so I would like to extend my sincere appreciation to all committees and volunteers from Universitas Islam Sultan Agung, UniversitasDiponegoro, Universitas Ahmad Dahlan and UniversitasSriwijaya for providing me with much needed support, advice, assistance on all aspects of the conference. We do hope that this event will encourage the collaboration among us in the future.

I wish all find opportunity to get rewarding technical program, intellectual inspiration, renew friendships and forge innovation, and that everyone enjoys some of what Semarang has to offer. The organizing committee sincerely hopes that the EECSI 2016 will be a truly memorable experience for all participants.

Finally, may I wish you an enjoyable conference and a pleasant stay in Semarang.

Imam Much IbnuSubroto, Ph.D  
Chair of EECSI 2016



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# Statistical Analysis of Reducing Biochemical Oxygen Demand (BOD) on Industrial Rubber Wastewater using Dielectric Barrier Discharge Plasma

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**Abstract.** Dielectric Barrier Discharge plasma (DBD) is one of type non-thermal plasma (non-equilibrium plasma) or can be referred to as cold plasma. In this research, DBD plasma be utilized to reduce organic compounds like Biochemical oxygen demand in the wastewater rubber processing. In the environment field DBD plasma has been used as a treatment for reducing air pollutants such as gas CO<sub>x</sub>, NO<sub>x</sub> and HC. In addition DBD plasma have been developed to processed wastewater as an alternative technology in wastewater treatment. DBD plasma appears when the electrode is given a high voltage so that, it will form electric field in the area of the electrodes which allows the ionization and the presence of high-energy electrons in the area. The presence of these electrons will ionize molecules of H<sub>2</sub>O into active species such as OH•, H• and H<sub>2</sub>O<sub>2</sub>. The active species that can oxidize into CO<sub>2</sub> and H<sub>2</sub>O so, BOD that can be degraded. In this research for wastewater treatment used high voltage are 10kV, 11kV, 12kV and 13kV and variations of processing time for 5, 10, 15, 20, and 25 (minutes). By increasing the voltage and extend the contact time then the speed variation of electrons to ionize the greater and more active species to be formed to degrade the pollutants to the maximum. This research used quantitative analysis with statistical analysis using SPSS software.

## 1. Introduction

Dielectric-barrier discharges plasma (DBD), also referred to silent discharges have found amount of interesting industrial applications in addition to the historical ozone generation[1]. Originally it was called the silent discharge in contrast with a spark discharge. From a fundamental point of view, the main difference between DBD and spark discharges is the presence of the dielectric barrier which precludes AC operation of the DBD[2]. Configuration of DBD plasma is a discharge having two dielectric barrier boundaries has many similarities with discharges operated between metal electrodes[3]. Plasma occurs when the electrode is given a high voltage so that the area around the electrodes form an electric field to ionize and the formation of electrons with great energy. On development of plasma technology, DBD is currently widely used as a treatment of wastewater to reduce polluter [4]-[7]. Characteristic of DBD can be provided atmospheric pressure. In this paper DBD plasma is used for treating industrial wastewater. Biochemical oxygen demand is a parameter that be studies researched to decreased of amount on the variation of voltage and duration of time application.



## Cooperative Learning for Distributed In-Network Traffic Classification

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**Abstract.** Inspired by the concept of autonomic distributed/decentralized network management schemes, we consider the issue of information exchange among distributed network nodes to network performance and promote scalability for in-network monitoring. In this paper, we propose a cooperative learning algorithm for propagation and synchronization of network information among autonomic distributed network nodes for online traffic classification. The results show that network nodes with sharing capability perform better with a higher average accuracy of 89.21% (sharing data) and 88.37% (sharing clusters) compared to 88.06% for nodes without cooperative learning capability. The overall performance indicates that cooperative learning is promising for distributed in-network traffic classification.

### 1. Introduction

Network traffic classification is a crucial network processing task for network traffic management. Traffic measurement and classification enable network administrators to be aware of the current network state. Data stream mining algorithms [1, 2] have been explored recently for online traffic classification to overcome the shortcoming of conventional data mining algorithms. They are designed to cope with concept drift, adapt to new knowledge and react to changes promptly.

Recently, distributed network management (DNM) strategies such as [3], have been introduced as a solution to the increasing management complexity of communication networks. These strategies are autonomic and decentralized in nature, towards improving network performance, scalability and to reduce human participation. Each DNM entity participates in a distributed management process, which requires cooperation among DNM entities to monitor, analyze and make decision to achieve global network objectives. Cooperative Learning (CL) enables network nodes to discover each other, exchange information, disseminate local decision, enhance self-adaptation of nodes, improve scalability and finally enforce management decision [4].

This paper proposes an analysis for online distributed in-network traffic classification based on our CL framework in [5], using incremental k-means network traffic classification [1]. This paper analyzes the effect of information exchange among nodes on the overall classification accuracy. We tested our proposed method on two schemes: sharing of training labeled data in the form of information and sharing of clusters in the form of knowledge. Our proposed system has been applied



## Fast Learning for Big Data Using Dynamic Function

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**Abstract.** This paper discusses an approach for fast learning in big data. The proposed approach combines momentum factor and training rate, where the momentum is a dynamic function of the training rate in order to avoid overshoot weight to speed up training time of the back propagation neural network engine. The two factors are adjusted dynamically to assure the fast convergence of the training process. Experiments on 2-bit XOR parity problem were conducted using Matlab and a sigmoid function. Experiments results show that the proposed approach significantly performs better compare to the standard back propagation neural network in terms of training time. Both, the maximum training time and the minimum training time are significantly faster than the standard algorithm at error threshold of  $10^{-5}$ .

### 1. Introduction

Recently, we are entering the era of “big-data”, and as the development of high-speed signal processing, fast and efficient learning and signal representation is becoming an emergent research topic. Extreme learning machine (ELM) [1] is one of the leading trends for fast learning. Unlike the other traditional learning algorithms, for example, Back Propagation-based neural networks, or support vector machine (SVM)], the parameters of hidden layers of ELM are randomly established and need not be tuned, thus the training of hidden nodes can be established before the inputs are acquired.

Feedforward neural networks have been widely used in various areas of machine learning. Hidden nodes in a neural network architecture work as universal approximation provided that all the parameters of the networks are adjustable. The most representative training method for Artificial Neural Networks is back propagation (BP) algorithm. BP calculates the gradient of a loss function with respect to all the weights in the network and updates the weights for minimizing the loss function. Nevertheless, the parameter tuning of BP-based neural networks is usually time consuming and cannot handle the overfitting problem.



## Organization Readiness and ERP Implementation in Albaha University

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**Abstract.** This work studies the correlation between the organizational readiness in Albaha University and the respective Critical Success Factors with regards to the Enterprise Resource Planning (ERP) implementation. The study also considers some suggestions to improve the ABU's ERP systems and roadmap towards the self-development strategy and to reduce vendor-dependency. A survey regarding ERP to the end-users, experts and developers in Albaha University was conducted. The analysis of the results in this work confirmed with the results of an existing work. The four significance success factors: Project Management, Business Process Re-engineering, System Integration, and Training and Education are recommended to be adopted to assure the smooth adoption of ERP at Albaha University.

**Keywords:** ERP, ORGD, Project Management, BPR System Integration

### 1. Introduction

Weiner [1] defines Organizational readiness (ORGD) for change as “a multi-level, multi-faceted construct. As an organization-level construct, readiness for change refers to organizational members' shared resolve to implement a change (change commitment) and shared belief in their collective capability to do so (change efficacy). The higher the organizational readiness for change, the more organizational members likely to initiate change, exert greater effort, exhibit greater persistence, and display more cooperative behaviour”. Figure 1 illustrates the factors and consequences of ORGD for change.

On the other hand, Enterprise Resource Planning (ERP) is the use of software suites to pull together and systemize data of various organization's levels to provide judgement into key performance indicators (KPIs). The ERP has wide-ranging set of achievements which assists an organization in dealing its business. In general deployment, ERP has to be integrated with other software systems with the aim of optimizing the overall system. Thus, deployment of a new in-house ERP system can involve sizeable business process reengineering and employee retraining.

