

# **2018 7th International Conference on Power Science and Engineering (ICPSE 2018)**

# **2018 2nd International Conference on Renewable Energy and Environment (ICREE 2018)**

## **Conference Abstract**

**Vienna, Austria**

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	<p>Especially air-condition system has taken the most substantial proportion of overall building energy consumption. This result from a large amount of energy must be used in order to provide a comfort zone for occupants in the building. So, this paper aims to proposed design and built prototypes of air-condition control unit that can automatically operate according to schedule. The prototypes using a wireless module to send the control signal to the air-conditioning unit. Specific software has been built to set the desired operating schedule and duration of an operation. The performance of the proposed unit will be evaluated using an experiment on actual field test by installing on actual air-condition in the case study building. The result has shown that the proposed unit can reduce energy usage in air-conditioning significantly compare with little cost for the controller unit.</p>
<p><b>E2024</b>  <b>14:45-15:00</b></p>	<p>Icing Events Assessment of a Wind Park in High Wind Speed Jia Yi Jin , Torgeir Blæsterdalen, Muhammad S. Virk Presenter: Jia Yi Jin, Institute of Industiral Technology, Faculty of Engineering Science &amp; Tchnology, Norway</p> <p>Abstract: Cold regions have good wind energy potential due to low temperature and higher air density. Wind resource assessment at cold climate sites is challenging, but important, as wind energy projects development decisions are based on these estimated results. This paper describes a case study of one-year (2014) icing event assessment using seasonal SCADA (Supervisory Control and Data Acquisition) data analysis and WRF (Weather Research and Forecasting) simulation of a wind park located in high north. SCADA data analysis have been carried out with the main focus on seasonal effects on wind power production and icing events assessment and has been sorted in three seasons; winter 1, winter 2 &amp; summer, where results show that seasonal effects are considerable on power production of the wind park. Mesoscale WRF simulations are carried out in addition to microscale Computational Fluid Dynamics (CFD) based simulations for better estimation of wind resources under icing conditions, where a good agreement is found with the wind park field SCADA data. Both SCADA and mesoscale WRF methods used for assessment of icing events in this paper are focused on high wind speed conditions (&lt; 20 m/s). Icing events assessment under high wind speed analysis shows that icing events depends on the meteorological conditions, wind flow behavior as well as the location of the wind turbine. Even in same wind park, it is not sure that ice will accretes on all the wind turbines as the wind park layout and change in flow behavior due to wind turbine wakes can effects the occurrence of ice accretion despite the favorable conditions for icing events.</p>
<p><b>E2040-A</b>  <b>15:00-15:15</b></p>	<p>The dynamics of growth and metabolic activity of microorganisms from an innovative granular activated sludge system modulate the efficiency of the wastewater treatment Mihai Nita-Lazar, Costel Bumbac, Elena Manea, Valeriu Badescu, Catalina Stoica, Alina Banciu Presenter: Mihai Nita-Lazar, National Research and Development Institute for Industrial Ecology, Romania</p>

	<p>Abstract: The rapid population increase and subsequently the increase of the anthropogenic activities have a growing impact on the environment. More than fifty thousand chemicals are regularly introduced into the environment affecting also the aquatic system, especially the ground water system, which represents the world's larger freshwater reservoir. It is highly important to find an efficient biotechnological solution for the wastewater treatment and the microalgae-bacteria granular system offers a better alternative solution. We showed that activated microalgae-bacteria granules, characterized by a high sedimentation rate (at maturity reaching 18-31 m / h), ensured almost a complete removal of microalgal biomass from the reaction medium by gravitational sedimentation (microalgal cell recovery being over 99%). Moreover, their microorganism community structure changed in function of the pollutant properties, increasing the wastewater treatment efficiency. We used modern biomolecular and microscopical based approaches to demonstrate that innovative microalgae-bacteria granular system is a sustainable wastewater treatment technology, having positive economical, ecological and social impacts.</p>
<p><b>E3007-A</b>  <b>15:15-15:30</b></p>	<p>A Study on Machine Learning for Monitoring Air Quality Wei-Chih Su Presenter: Wei-Chih Su, National Applied Research Laborites, Taiwan</p> <p>Abstract: Forecasting of air quality parameters is one of topic of air quality research in recent years, because of human health effects caused by airborne pollutants in urban areas. In this study, well-known multilayer preceptrons (MLPs) that is popular artificial neural network algorithm would be used for constructing the prediction model of PM2.5. First, the weighting coefficient between the input layer and hidden layer or between the hidden layer and output layer that was constructed by different input parameters (such as, winds, NO2, SO2 ... et al.) will be investigated for finding out the key input parameters in the predication neural network. Next, the effect of activation functions, cost functions, number of neural nodal and hidden layers will also be discussed. Finally, the accuracy of the constructed PM2.5 prediction neural network will be validated from the collected air quality data during 2011-15 in Taiwan.</p>
<p><b>E3201-A</b>  <b>15:30-15:45</b></p>	<p>Anaerobic co-digestion of mediterranean Food waste and sewage sludge for Bioenergy Production Yosra Mater Ben Hamrouni, Presenter: Yosra Mater Ben Hamrouni, Ecole Nationale des Ingénieurs de Tunis</p> <p>Abstract: 2.5 Million tons of food waste (FW) are generated annually in Tunisia, only 15% of which is composted and less than 1% is used for green energy. According to the eating habits of the region, meals usually consist of pasta, meats, spicy sauces and small portions of vegetables. This composition generates food waste with a high organic matter(VS/TS=88%), containing a dominant amount of carbohydrates (78%), 16% lipid, and 5% protein. Carbohydrates fraction is composed of 90% sugars. All these properties make this kind of wastes, a potential</p>