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PAPER-1

Continuous Hydrologic Simulation using Soil Moisture Accounting Algorithm of Randullabad Watershed, India

Md. Rehan Shaikh[1*], R.N. Sankhua[2] and R. P. Thanedar[1]
[1]*College of Engineering, Pune, Maharashtra, India*
[2]*National Water Academy, CWC Pune, Maharashtra, India*
*Corresponding author: rehanshaikh0007@yahoo.com

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Abstract : *The present study encompassed Soil Moisture Accounting (SMA) algorithm for simulating the long term relationship between rainfall, runoff, evapotranspiration, and soil losses in the Randullabad watershed. The objective of this study was to evaluate the performance and potentiality of the Hydrologic Modeling System (HMS) with the SMA algorithm on Geographic Information System (GIS) platform using Hydrologic Engineering Centre Geospatial Hydrologic Modeling System (HEC-GeoHMS) for the watershed. Daily observed rainfall and runoff records of six years (2005-2010) and the Digital Elevation Model (DEM) at 30 m resolution from the ASTER dataset of the study area were made available for the calibration and verification stages. The DEM was used to extract the watershed characteristics and model parameterization in Arc View GIS. Sensitivity analysis of the model parameters were carried out to know the parameters affecting the simulated discharge and accordingly the adjustment of loss parameter values were made during the calibration process. The obtained results tested with statistical tests taking in to consideration the lumped time invariant parameters used in the calibration and verification of the model were reasonable and acceptable. The statistical performance of the model focused to yield gainful result of the watershed by accounting more than 90% of the initial variance. Model performance indicated that the developed parameterization and calibration methodologies work well when applied to the study area.*

PAPER-2

Quantitative Structure Activity Relationship Analysis of Benzene Sulfonamides and its Derivatives as Diuretic Agents

Navneeta Upadhyay[1*], P. V. Khadikar[2], Apoorva Upadhyay[3] and Asmita Sharma[4]
[1]*Chameli Devi Group of Institutions, Indore, Madhya Pradesh, India*
[2]*Laxmi Fumigation & Pest Control Division, Indore, Madhya Pradesh, India*
[3]*Dr. H. S. Gaur University, Sagar, Madhya Pradesh, India*
[4]*IPS Academy, Indore, Madhya Pradesh, India.*
*Corresponding Author : navneetaupadhyay@gmail.com

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Abstract : *The relationship between the structure of a series of benzene sulfonamides and its diuretic activity has been analyzed by using sterimol and structural parameters by means of multiple regression analysis (MRA).statistically significant models with significant correlation coefficients were obtained. Best model is useful to design the diuretics having improved potency. Good correlation between experimental and predicted activity values for the test set compounds further proved the reliability of the QSAR model.*

PAPER-3

QSAR Study on Flow Cytometric Data of Smaller Polycyclic Aromatic Hydrocarbons

Neena Sohani[1*] and P.V. Khadikar[2]

[1]*Christian Eminent Academy of Professional Education and Research, Indore(MP), India*

[2]*Research Division, Laxmi Fumigation and Pest Control, Pvt. Ltd., 3, Khatipura, Indore(MP), India*

*Corresponding author : neenasohani@rediffmail.com

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Abstract : *The paper describes use of Topological indices for the estimation of flow cyctometric data. The abilities of 14 polycyclic aromatic hydrocarbons to induce apoptosis in human monocyclic THP-1 cells were investigated. Combination of connectivity indices with 3-d indices yielded excellent models for apoptosis. The results are critically discussed on the basis of variety of statistical parameters.*

PAPER-4

Yield Line Analysis of Rectangular Slabs using Artificial Neural Networks

K. K. Pathak[1*] and R. K. Dixit[1]

[1]*National Institute of Technical Teachers' Training and Research, Bhopal (MP), India*

*Corresponding author: kkpathak@nitttrbpl.ac.in

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Abstract : *In this study, an artificial neural network has been used for fast and reliable yield line analysis of rectangular slabs. Trained based on the data generated using analytical and computational tools, an artificial neural network has been used to analyse new problems. It has been observed that neural network offers a powerful tool for the yield line analysis of slabs.*

PAPER-5

Design and Simulation of Microstrip Patch Antenna with FR4 Substrate for 2.4GHz and 5GHz Band Applications

A. Sahaya Anselin Nisha[1*]and T. Jayanthy[2]

[1]*Sathyabama University, Chennai, Tamilnadu, India*

[2]*Panimalar Institute of Technology, Chennai, Tamilnadu, India*

*Corresponding author: saanni_2004@yahoo.co.in

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Abstract : *This paper describes design and simulation of patch antenna with FR4 substrate for 2.4GHz and 5GHz applications. Microstrip line feed is used to give input signal to radiating element. Height of substrate is taken as 1.6mm and the dielectric constant is 4.6. The antenna is designed, optimized and analyzed with commercially available ADS Software. The various parameters such as Return loss, Power, gain is measured. The directivity of an antenna is 9.56145dB.*

PAPER-6

Predicting the Flexural Strength of Steel Fiber Reinforced Concrete Beams using Artificial Neural Networks

Shailendra Kumar[1*] And S. V. Barai[2]

[1]*Institute of Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh, India*

[2]*Indian Institute of Technology, Kharagpur, West Bengal, India*

*Corresponding author: shailendrakmr@yahoo.co.in

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Abstract : *This paper presents application of artificial neural network on prediction of ultimate flexural capacity of steel fiber singly reinforced concrete beams of rectangular cross-section. Based on previous analytical studies the database for reinforced fibred concrete beams is developed to train the neural network and its performance is tested and compared with the experimental results available in the literature as well as those obtained from previous researchers' analytical models and the ACI Code 544.4R-88.*

PAPER-7

Spatial Multicriteria Decision Analysis for Residential Land Use Suitability using AHP

V. D. Patil[1*], R. N. Sankhua[2] and R. K. Jain[3]

[1]*Sinhgad Engineering College (University of Pune)) Pune, Maharashtra, India*

[2]*National Water Academy, Khadakwasla, Pune, Maharashtra, India*

[3]*Dr. D. Y. Patil Institute of Technology and Engineering, Pimri, Pune, Maharashtra, India*

*Corresponding author : vdpatil@nitttrbpl.ac.in

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Abstract : *An attempt has been endeavored in the Analytical Hierarchical Process of land use suitability for real estates of in conjunction with Erosion Response using spatial technique for Pimpri-Chinchwad-Municipal Corporation (PCMC) area. This is just an amalgamation of a heuristic algorithm that provides good approximate, but not necessarily optimal solution to a given model in the area under consideration. To derive ratio scales from paired comparisons in employing such an algorithm, one may be able to precisely measure the 'goodness' of the approximation. In the present envisaged study, the Landscape Characteristics Response Model (LRM) factors like slope, Drainage Density (DD), Soil Brightness Index(SBI), Normalized Differential Vegetation Index (NDVI) affecting in the process are analytically and logically encompassed to make a gainful research through a scientifically proven method, which has been depicted in this present paper in a sequential manner.*

PAPER-8

Reaching Goals of Hypertension : Role of Angiotensin II Receptor Blockers

Varsha Hardikar[1*] and Neha Kawathekar[1]

[1]*Shri G. S. Institute of Technology and Science, Indore(M.P.) India*

[*]Corresponding author : varshahardikar2@yahoo.co.in

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Abstract : *Persistant hypertension is one of the risk factors for stroke, myocardial infraction ,heart failure and is a leading cause of chronic kidney failure . Renin Angiotensin Aldosterone system (RASS) is an important regulator of blood pressure .Intervension of RAAS by a comparatively newer class of antihypertensive agents, Angiotensin II receptor blockers (ARB), has proved to be very effective in treating hypertension .These drugs are selective for angiotensin II (type 1 receptor).Since ARBs do not inhibit bradykinin metabolism or enhance prostaglandin synthesis they have a specific advantage over angiotensin converting enzyme (ACE) inhibitors Here we are giving an overview of various angiotensin II receptor blockers.*

PAPER-9

Correlation Study of TEC and foF2 with the Help of GPS and Ionosonde Data

A. K. Gwal[1], Prakash Khatarkar[1*], Parvaiz A. Khan[1], Shweta Mukherjee[1] and P.K. Purohit[2]

[1]Space Science Laboratory, Barkatullah University, Bhopal (MP), India

[2]National Institute of Technical Teachers' Training and Research, Bhopal(MP), India

*Corresponding author : pkhatarkar.01@gmail.com

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Abstract : *The behavior of ionosphere can be diagnosed by a number of techniques. The common techniques used are the space based Global Positioning System and the ground based Ionosonde. We have compared the variability of ionospheric parameters by using two different techniques GPS and Ionosonde, during December 2009 to November 2010 at the Indian base station Maitri (11.45E, 70.45S). The comparison between the measurements of two techniques was realized through the Total Electron Content (TEC) parameters derived by using different methods. The comparison was made diurnally, seasonally, polar day and polar night variations and the annually. From our analysis we found that a strong correlation exists between the GPS derived TEC and Ionosonde derived foF2 during the day period while during the night time the correlation is insignificant. At the same time we found that a strong correlation exists between the Ionosonde and GPS derived TEC. The pattern of variation of ionospheric parameters derived from two techniques is strikingly similar indicating that the high degree of synchronization between them. This has a practical applicability by allowing calculating the error in one technique by comparing with other.*

PAPER-10

Utilization of New Synthesized Guar Gum Trihydroxybenzoic Acid Resin for Removal of Cu(II), Cr(III), Co(II) and Pb(II) Metal Ions from Industrial Wastewater

S. C. Gupta[1], I. K. Kumawat[2], Sandhya Gupta[1] and A.V. Singh[2*]

[1]Defence Institute of Advanced Technology, DIAT, Girinagar, Pune, Maharashtra, India

[2]Jai Narain Vyas University, Jodhpur, Rajasthan, India

*Corresponding author : areshvikram04@rediffmail.com

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Abstract : *A new guar gum based resin containing 3, 4, 5-trihydroxybenzoic acid group has been synthesized by modified Porath's method of functionalization of polysaccharides. The resin was characterized on the basis of chemical composition, Fourier-transform infrared spectroscopy, ion exchange capacity, thermogravimetric analysis, pH titration and physico-chemical properties. The distribution coefficient (Kd) values and influence of pH on chelation of these metal ions were studied using batch method. Analytically difficult separations of metal ions have been achieved using columns packed with this exchanger. The effects of experimental parameters such as pH and resin doses on the removal of metal ions have been also studied. These results show that GTHBA resin hold great potential to remove cationic heavy metal species from industrial wastewater.*

PAPER-11

Analysis of Structural Integrity of Header Nozzle using FEA Software

Rakesh Kumar Singh[1*], Rohit Rajvaidya[1] and Jackson Fernandez[2]

[1]Barkatullah University Institute of Technology Bhopal, Madhya Pradesh, India

[2]GEI Industrial Systems Ltd. Bhopal, Madhya Pradesh, India

*Corresponding author : rakeshjsr83@gmail.com

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Abstract : *Header is a part of tube bundle of an Air-cooled heat exchanger, used in refinery and oil & gas production. Typically, header can be considered as a pressure vessel subjected to uniform internal pressure. Hence the structural integrity of the header and nozzle in various design & operating conditions needs to be checked and verified for soundness of participating components. Structural integrity due to uniform internal pressure in the nozzle & header plate can produce high-localized stress and deformation. If the components are not designed for these conditions, safety of the equipment is at stake. Hence check for the structural integrity of the header during operating condition is carried out using finite element analysis software and observed that header nozzle is free from collapse and serviceability failure.*

PAPER-12

Concept of Minimizing Leakage Currents in a Full Adder Circuit using GDI and Stack Technologies

Sandip Nimade[1] and Sthuthi Rachel[1*]

[1,2] Technocrate Institute of Technology, Bhopal, Madhya Pradesh, India

*Corresponding author : sthuthi.rachel@gmail.com

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Abstract : *In digital VLSI circuits, low power design has become one of the foremost concerns. There are various methodologies to achieve this purpose. Gate-Diffusion-Input (GDI) Technique and Stack Technique are two methods to arrive at this objective. In this study, the full adder circuit is intended to be used in implementing these methodologies. These methodologies or designs allow reduction in power, transistor count, leakage currents and layout (Surface) area through the use of appropriate software such as Microwind.*

PAPER-13

An Efficient and Environment Friendly Procedure for Synthesis of Arylidine Derivatives Catalyzed by Amberlyst® 15 DRY Cation Exchange Resin as Recyclable Heterogeneous Catalyst

Srinivasa Rao Jetti[1], Pradeep K. Paliwal[1], V. W. Bhagawat[2] and Shubha Jain[1*]

[1]Vikram University, Ujjain, Madhya Pradesh, India

[2]Prashanti Institute of Technology & Science, Ujjain, Madhya Pradesh, India

*Corresponding Author : drshubhajain@yahoo.com

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Abstract : *Knoevenagel condensation of malononitrile (or ethyl cyanoacetate) with aromatic aldehydes catalyzed by Amberlyst® 15 DRY anion-exchange resin in water results arylmethylenemalononitrile (or ethyl cyanoacetate) in 76-98% yield at room temperature. The reusability, shorter reaction time and environment friendly nature of the catalyst are the main advantages of this method.*