

## Editorial

### I. About This Volume

This Volume 37 Number 1 includes ten research articles. The relevance and usefulness of respective articles are summarised below.

**W.A. Wilson, R.G. Williams and D. Gaston**, “The Capacity of Shear-walls Made with Caribbean Timber Species”, reported on the findings of an experimental study on nailed plywood sheathed shear walls with Caribbean Pitch Pine framing. The study aimed to develop shear capacity data to facilitate the design of hurricane-resistant buildings using these Caribbean timber species. A total of ten (10) shear walls were tested in accordance with the American Standard for Testing Materials, ASTM E-564 procedures. The shear capacity results obtained from this testing programme were compared with results from the Special Design Provisions for Wind and Seismic Design (SPDWS-2005) code for wood-frame plywood shear walls of similar construction.

**R. Hosein and R. Lewis-Hosein**, “An Experimental Investigation of Steam Distillation of Trinidad Crude Oils”, presented the findings of a recent study on steam distillation using six Trinidad oil samples with gravity ranging from 11.6° to 30.6° API. The oil samples were distilled using saturated steam at pressures ranging from 0.101 to 4.654 MPa and steam temperatures from 100 to 260 °C. The results obtained were tabulated and displayed graphically for comparison. It was found that steam distillation yield increased significantly with an increasing saturated steam conditions for the same sample. For the same saturated steam conditions, steam distillation yield increased with increasing API gravity. The findings could be used in the testing and development of steam distillation predictive models for local and worldwide applications for steam flood designs.

**S. Thomas and B.V. Chowdary**, “The Effects of Digitising Parameters on Noise in Point Cloud Data: An Investigative Study on a Freeform Model”, investigated the operations undertaken in achieving an object’s accuracy in the data acquisition phase with a 3D scanner. Experiments were performed to evaluate the selected parameters that contributed to noise generation in the point cloud data. It was found that laser intensity has the most significant effect in the generation of noise in the point cloud data, whereas environmental light has the least effect of the three parameters examined.

**T.I. Ogedengbe and S.O. Abadariki**, “Development and Performance Evaluation of a Bone-Milling cum Pulverizing Machine”, developed a process machine for milling and pulverising animal bone into bone meal. The design concept integrated the milling and pulverising of animal bones into one machine. The calculations were done using existing machine design theories to obtain relevant design parameters of the components of the machine. Initial performance evaluation of the machine

showed that the machine could perform the desired function of milling and pulverising bone to powder and enhance productivity.

**I.O. Oladele, J.A. Omotoyinbo and B.O. Adewuyi**, “Mechanical and Water Absorption Properties of Sisal-Fibre-Reinforced Polypropylene Composites for Ceiling Application”, investigated the effect of water media on the suitability of sisal fibre reinforced polypropylene composites. The composites were produced by compression moulding technique after which mechanical tests and water absorption tests were carried out on the samples. Scanning Electron Microscope was used to study morphology of the fractured surface of the composites after the test. The results showed that chemical treatment for the modification of the fibre surface could be exploited in order to enhance the mechanical and water absorption properties of the composite developed.

**A.A. Baboolal, R.M. Clarke, J.C. Knight and H. Vincent**, “Mineralogical, Microstructural and Physio-Metamorphosed Phyllites: The Chancellor and Galera Formations of Trinidad”, attempted to quantitatively characterise the mineralogy and determine the elemental distribution within the rocks of the Chancellor and Galera Formations. For samples from both formations, there was a high degree of variability in microstructure, and from an elemental perspective a widespread distribution of silicon, aluminium and potassium was unveiled, and physical characteristics were determined. The knowledge of these properties is important with respect to geotechnical design and stability evaluation applications in these areas.

**D.R. McGaw, S. Maharaj, A. Parasram and W. Grayson**, “The Extraction of Heavy Oil from Trinidad Tar Sands Using Supercritical Carbon Dioxide”, examined the effects of pressure 100 to 500bar, temperature 30 to 60°C, particle size >20mm to <1mm, as well as the use of entrainers (pentane, hexane, heptane, and octane) to enhance recovery. The results showed the maximum extraction yield using carbon dioxide alone to be 4.5% by mass of the original charge in ~3hours. Microscopic analysis showed the raw material to be a conglomerate mass initially, but breaking down to the individual sand particles with small amounts of oil cover after extraction. The final extracted sand could be subjected to bioremediation prior to charging back to the mine as an environmentally friendly disposal mechanism.

**E.J. Peters and K.D. Balfour**, “Water Losses and the Potential of Reducing System Pressure: A Case Study in Trinidad”, analysed the minimum night flow measurements to estimate non-revenue water (NRW). By simulating pressure reductions in the DMAs such that at least 20m of pressure is achieved at the highest elevations in the District Metered Areas (DMAs), it is considered possible to reduce NRW by over 70% and at the same

time reduce the frequency of burst pipes by over 40%. Emphasis on pressure management through the implementation of DMA would improve the management of water supply in Trinidad.

**M.O. Jimoh, O.J. Olukunle, and S.I. Manuwa**, “Comparative Analysis of Cassava Peeling Concept of an Automated System”, investigated the principle and quality performance efficiencies of cassava peeling and developed a model predicting the performance of peeling machine. The principle is based on impact as tubers spin and came in contact with the cutting tool during linear movement in the direction of auger. Performance evaluation was carried out to predict peeling performance of the machine in different locations. Functional parameters at different feed rate and machine speed were determined. The result showed that crop parameters and machine parameters had no significant difference at different locations using the same machine.

**B.V. Chowdary and D. R. Sahatoo**, “A Study on CAD Modelling and File Generation Issues in Rapid Prototyping”, contrasted two methods of input to the rapid prototyping (RP) process, viz., manual modeling (MM) and reverse engineering (RE) techniques. An object was selected to generate computer aided design (CAD) models via MM and RE techniques and STL (STereoLithography) files were generated. The plots of file size versus deviation tolerance; and file size versus angular tolerance were developed in order to provide practitioners an opportunity to assess the capabilities of MM and RE approaches in acquiring a better CAD file.

**C.T. Benjamin and K.F. Pun**, “An Exploratory Study to determine Archetypes in the Trinidad and Tobago Fashion Industry Environment”, presented the findings of an empirical study among industry stakeholders on the development of the T&T Fashion Industry in the Caribbean region. Q-Methodology, which forced participants to rank numbered statements relative to one another, according to their level of agreement or disagreement with each, was used. Five (5) archetypes were identified and used to represent stakeholder viewpoints which should inform policy governing the development of the T&T Fashion Industry.

## II. Acknowledgements

On behalf of the Editorial Office, we gratefully acknowledge all authors who have made this special issue possible with their research work. We greatly appreciate the voluntary contributions and unfailing support that our reviewers give to the Journal.

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KIT FAI PUN, *Editor-in-Chief*

Faculty of Engineering,  
The University of the West Indies,  
St Augustine, Trinidad and Tobago  
West Indies

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