Issues

Select Decade 2020

Select Year 2024

Issue 8 February - Volume 3050, Issue 1

PRELIMINARY

Preface: 2nd International Conference on Advanced Earth Science and Foundation Engineering (ICASF 2023)

AIP Conf. Proc. 3050, 010001 (2024) https://doi.org/10.1063/12.0024137

View article | PDF

MATERIALS AND STRUCTURAL COMPOSITION

Disproportionate collapse of steel industrial building

Mohammad Wakas Yousuf; Prince Sharma

AIP Conf. Proc. 3050, 020001 (2024) https://doi.org/10.1063/5.0194287

Abstract | View article | PDF

Partial replacement of bitumen with polymers

Rajat Sagoch; Navneet Himanshu

AIP Conf. Proc. 3050, 020002 (2024) https://doi.org/10.1063/5.0193774

Abstract | View article | PDF

Stabilization of clayey soil by incorporating shredded aluminium and LDPE waste

Tushar Mahajan; Amanpreet Tangri

AIP Conf. Proc. 3050, 020003 (2024) https://doi.org/10.1063/5.0193750

Abstract View article PDF

Utilization of steel slag in sustainable and eco-friendly rigid pavement with self-compacting concrete

Aishwarya Bhatt; Amanpreet Tangri

AIP Conf. Proc. 3050, 020004 (2024) https://doi.org/10.1063/5.0193751

Abstract View article PDF

Lateral load analysis of steel braced RCC building

Paras Bhandari; Gagandeep Singh

AIP Conf. Proc. 3050, 020005 (2024) https://doi.org/10.1063/5.0194219

Abstract View article PDF

Development of a safety management program for the construction industry of Nepal

Manish Bhagat; Deepak Juneja

AIP Conf. Proc. 3050, 020006 (2024) https://doi.org/10.1063/5.0193690

Abstract View article PDF

EARTH SCIENCE AND FOUNDATION ENGINEERING

Analyzing the impact of COVID-19 pandemic on mobility behavior and formulation of post-COVID public transport strategy

Mariya Mukhtar; Janani Lekshmipathy; Manju Suthar

AIP Conf. Proc. 3050, 030001 (2024) https://doi.org/10.1063/5.0193896

Abstract View article PDF

Systematic review on the properties of CSEBs with the addition of industrial and agricultural wastes

Aayushee Rajput; Tarun Sharma

AIP Conf. Proc. 3050, 030002 (2024) https://doi.org/10.1063/5.0194936

Abstract View article PDF

Durability characteristics of unfired earth blocks influenced by the addition of industrial waste and synthetic fibre

Aditya Raj; Tarun Sharma

AIP Conf. Proc. 3050, 030003 (2024) https://doi.org/10.1063/5.0193811

Abstract View article PDF

A review of geopolymer concrete incorporating recycled aggregates

Irfan Beigh; Mohd Zia ul Haq

AIP Conf. Proc. 3050, 030004 (2024) https://doi.org/10.1063/5.0196292

Abstract View article PDF

A sustainable approach to geopolymer concrete utilizing waste materials including plastic waste

Itoo Muzamil Aashaq; Md Zia ul Haq

AIP Conf. Proc. 3050, 030005 (2024) https://doi.org/10.1063/5.0196296

Abstract View article PDF

A global analysis and outlook for the sustainable materials approach to corporate social responsibility

Swedika Sharma

AIP Conf. Proc. 3050, 030006 (2024) https://doi.org/10.1063/5.0193704

Abstract View article PDF

A review on synthesis and application of mesoporous silica nanoparticles in adsorption

Naveen Kumawat

AIP Conf. Proc. 3050, 030007 (2024) https://doi.org/10.1063/5.0194909

Abstract View article PDF

Seismic evaluation of high rises buildings using a variety of bracing approaches

Kamani Kanchan; Pankaj Kumar

AIP Conf. Proc. 3050, 030008 (2024) https://doi.org/10.1063/5.0197286

Abstract View article PDF

Green materials & construction: A step towards sustainable environment

Swedika Sharma

AIP Conf. Proc. 3050, 030009 (2024) https://doi.org/10.1063/5.0193701

Abstract View article PDF

Effect of anti-stripping agents and polypropylene fibreon stripping of polymer modified bitumen

Samrity Jalota; Manju Suthar

AIP Conf. Proc. 3050, 030010 (2024) https://doi.org/10.1063/5.0194177

Abstract View article PDF

Partial replacement of cement & fine aggregate with bagasse ash & marble dust

Naeem Khandker; Shalika Mehta

AIP Conf. Proc. 3050, 030011 (2024) https://doi.org/10.1063/5.0194697

Abstract View article PDF

Experimental investigation of bamboo leaf ash and rice-husk ash as partial replacement of cement in concrete

Munish; Shalika Mehta

AIP Conf. Proc. 3050, 030012 (2024) https://doi.org/10.1063/5.0195620

Abstract View article PDF

Effect of nail inclination and facing material type on slope stability

Andleeb Gul; Manju Suthar

AIP Conf. Proc. 3050, 030013 (2024) https://doi.org/10.1063/5.0193897

Abstract View article PDF

Sustainable approach towards utilization of RBI grade 81 for soil stabilization

Vishal Sharma; Akriti Sharma; Md. Zia ul Haq; Manmeet Kaur

AIP Conf. Proc. 3050, 030014 (2024) https://doi.org/10.1063/5.0197114

Abstract View article PDF

ENVIRONMENTAL ENGINEERING

Sustainable approach and methodology for early design of energy efficient buildings with green materials

Pankaj Minhas; Nitish Kumar Sharma

AIP Conf. Proc. 3050, 040001 (2024) https://doi.org/10.1063/5.0194186

Abstract View article PDF

Cost considerations in green residential developments: Concept of green materials and sustainable approach

Kapil Minhas; Nitish Kumar Sharma

AIP Conf. Proc. 3050, 040002 (2024) https://doi.org/10.1063/5.0194185

Abstract View article PDF

Improving the performance of porous concrete by utilizing the pumice aggregate

Sourish Das; Deepak Juneja

AIP Conf. Proc. 3050, 040003 (2024) https://doi.org/10.1063/5.0193693

Abstract View article PDF

Partial replacement of cement with marble dust powder, fine aggregate with copper slag, and coarse aggregate with recycled aggregate in concrete

Sanjay Yadav; Shalika Mehta

AIP Conf. Proc. 3050, 040004 (2024) https://doi.org/10.1063/5.0193743

Abstract View article PDF

Uplift capacity of granular pile anchor: A review

Zehra Khan; Amanpreet Tangri; Naiyara Khan

AIP Conf. Proc. 3050, 040005 (2024) https://doi.org/10.1063/5.0193695

Abstract View article PDF

Development of human powered drinking water pump

Tarsem Singh

AIP Conf. Proc. 3050, 040006 (2024) https://doi.org/10.1063/5.0194018

Abstract View article PDF

Comparative study of cement and lime stabilization techniques for improving compressive strength of soil

Sujay Kumar Dolai; Arindam Mondal; Abhijit Bhowmik; Plaban Deb

AIP Conf. Proc. 3050, 040007 (2024) https://doi.org/10.1063/5.0193722

Abstract View article PDF

Environmental effects and sustainable hydropower development: A review of deployment research, environmental valuation and iot sensors integration

Sumit Rawat; Bishnu Kant Shukla; Parveen Sihag; Yuvraj Srivastav; Hans Kumar Singh

AIP Conf. Proc. 3050, 040008 (2024) https://doi.org/10.1063/5.0193662

Abstract View article PDF

Mechanical characterization and parametric optimization of stir cast AA6063-Borosilicate glass powder composites

Abhijit Bhowmik; Guttikonda Manohar; Prasanta Majumder; Plaban Deb

AIP Conf. Proc. 3050, 040009 (2024) https://doi.org/10.1063/5.0193725

Abstract View article PDF

Augmenting concrete performance and sustainability with recycled glass: A critical examination of material characteristics and construction applications

Neha Maurya; Yuvraj Srivastav; Sumit Rawat; Manshi Sharma; Risha Srivastava; Parveen Sihag; Bishnu Kant Shukla

AIP Conf. Proc. 3050, 040010 (2024) https://doi.org/10.1063/5.0193663

Abstract View article PDF

The conceptual review on use of hollow concrete blocks in RC design

Rudradeep Das; Abhijit Bhowmik; Souvik Makhal; Sagnik Mukherjee; Rahul Satra; Plaban Deb

AIP Conf. Proc. 3050, 040011 (2024) https://doi.org/10.1063/5.0193726

Abstract View article PDF

SUSTAINABLE DEVELOPMENT

Performance of expansive soil stabilized with coir fibers & rubber tire waste

Ridham Malgotra; Pankaj Kumar

AIP Conf. Proc. 3050, 050001 (2024) https://doi.org/10.1063/5.0193786

Abstract View article PDF

Review of machine learning implementation on intrusion dataset for detection of possible intrusions

Amit Kumar; Rajdeep Chakrabarty; Ganesh Gupta

AIP Conf. Proc. 3050, 050002 (2024) https://doi.org/10.1063/5.0194475

Abstract View article PDF

Automation of smart home for well being of individual using face detection and recognition

Neera Batra; Sonali Goyal; Amandeep Kaur; Divya Gupta

AIP Conf. Proc. 3050, 050003 (2024) https://doi.org/10.1063/5.0194412

Abstract View article PDF

MFRASTA: Voice biometric feature using integration of MFCC and RASTA-PLP

Sonali Goyal; Neera Batra; Amandeep Kaur; Divya Gupta

AIP Conf. Proc. 3050, 050004 (2024) https://doi.org/10.1063/5.0194413

Abstract View article PDF

A review: Integration of wireless sensor network (WSN) with internet of things (IOT)

Ravneet K. Sidhu

AIP Conf. Proc. 3050, 050005 (2024) https://doi.org/10.1063/5.0194898

Abstract View article PDF

Experimental work on strength performance of high strength concrete using SFs, FA, and steel fibers

Anjeet Bairain; Jagdish Chand

AIP Conf. Proc. 3050, 050006 (2024) https://doi.org/10.1063/5.0195266

Abstract View article PDF

Compatibility study of astaxanthin with pharmaceutical excipients using thermal and nonthermal techniques for the development of TDDS

Rajwant Kaur; Saahil Arora; Manish Goswami

AIP Conf. Proc. 3050, 050007 (2024) https://doi.org/10.1063/5.0194196

Abstract View article PDF

IoT based intelligent irrigation system using Arduino

Sonam Khattar; Lakshmi Sharma; Anmol Taneja

AIP Conf. Proc. 3050, 050008 (2024) https://doi.org/10.1063/5.0197057

Abstract View article PDF

Enhancing sustainability in manufacturing: A case study on reducing changeover time through single minute exchange of dies and risk analysis

Harnam Singh Farwaha; Prem Singh; Mukesh Kumar; Nishant Ranjan; Harpreet Kaur

AIP Conf. Proc. 3050, 050009 (2024) https://doi.org/10.1063/5.0193678

Abstract View article PDF

Investigating the effective position of shear walls in high rise building

Yao Domadzra; Murtaza Hasan

AIP Conf. Proc. 3050, 050010 (2024) https://doi.org/10.1063/5.0193692

Abstract View article PDF

Application of teaching learning based optimization in traveling salesman problem

Wonseh Mulbah; Navneet Himanshu

AIP Conf. Proc. 3050, 050011 (2024) https://doi.org/10.1063/5.0194178

Abstract View article PDF

Seismic analysis of high rise building with waffle slabs in irregular pattern of architectural plan

Mohammad Imran Rahmani; Jagdish Chand

AIP Conf. Proc. 3050, 050012 (2024) https://doi.org/10.1063/5.0196625

Abstract View article PDF

RESEARCH ARTICLE | FEBRUARY 08 2024

Comparative study of cement and lime stabilization techniques for improving compressive strength of soil

Sujay Kumar Dolai; Arindam Mondal; Abhijit Bhowmik ; Plaban Deb

+ Author & Article Information

AIP Conf. Proc. 3050, 040007 (2024)

https://doi.org/10.1063/5.0193722

The presented study investigates the effect of soil stabilization on the compressive strength of different soil types. The study uses cement and lime as stabilizing agents and explores the fractional order difference between stabilized and unstabilized soil for different alpha values. The results show that both cement and lime stabilization significantly improve the compressive strength of soil, with lime showing slightly better performance. The study also demonstrates the importance of choosing the appropriate alpha value for fractional order calculations. The presented plots provide a comprehensive visualization of the results and can serve as a useful reference for future studies on soil stabilization. Overall, the study highlights the potential of soil stabilization techniques to enhance the mechanical properties of different soil types and provides insights into the underlying mechanisms of these improvements.

Topics

Cement

REFERENCES

1. Ni, J., Hao, G.-L., Chen, J.-Q., Ma, L., Geng, X.-Y. “The Optimisation Analysis of Sand-Clay Mixtures Stabilised with Xanthan Gum Biopolymers”, *Sustainability* (MDPI, 2021); pp. 3732.
Google Scholar

2. Chang, Ilhan, Jooyoung Im, Awlia Kharis Prasidhi and Gye-Chun Cho. “Effects of Xanthan gum biopolymer on soil strengthening.” *Construction and Building Materials* (2015), pp. 65–72.
Google Scholar

3. Cabalar, Ali Firat, M. Wiszniewski and Zdzisław Skutnik. “Effects of Xanthan Gum Biopolymer on the Permeability, Odometer, Unconfined Compressive and Triaxial Shear Behavior of a Sand.” *Soil Mechanics and Foundation Engineering*, (2017), pp. 356–361.
Google Scholar

4. Chen, Chunhui, Chunhui Chen, Li Wu, Michal Perdjon, Xiaoyang Huang and Yaxiong Peng. “The drying effect on xanthan gum biopolymer treated sandy soil shear strength.” *Construction and Building Materials*,(2019).
Google Scholar

5. Pastor, J.L., Chai, J., Sánchez I. “Strength and Microstructure of a Clayey Soil Stabilized with Natural Stone Industry Waste and Lime or Cement”. *Applied Sciences*, (MDPI 2023); pp. 2583.
Google Scholar

6. Hossein MolaAbasi, Safoura Naderi Semsani, Mohammad Saberian, Aghileh Khajeh, Jie Li, Mohammad Harandi, “Evaluation of the long-term performance of stabilized sandy soil using binary mixtures: A micro-and macro-level approach, *Journal of Cleaner Production*, (Elsevier, 2020), pp. 122209.
Google Scholar

7. Firoozi, A.A., Guney Olgun, C., Firoozi, A.A. et al. “Fundamentals of soil stabilization”. *Geo-Engineering* (Springer 2017).
Google Scholar

8. Dharmendra Barman, Sujit Kumar Dash, “Stabilization of expansive soils using chemical additives: A review”, *Journal of Rock Mechanics and Geotechnical Engineering*, (CSRME, 2022), pp. 1319–1342,
Google Scholar

9. Sun, Yifei and Changjie Zheng. “Fractional-order modelling of state-dependent non-associated behaviour of soil without using state variable and plastic potential.” *Advances in Difference Equations* (2019).
Google Scholar

10. Liang, Guishu and Yulan Yang. “Fractional calculus-based analysis of soil electrical properties.” *Compel-the International Journal for Computation and Mathematics in Electrical and Electronic Engineering* (2019), pp. 279–295.
Google Scholar

11. Mirza, Itrat Abbas, Muhammad Saeed Akram, Nehad Ali Shah, Shehraz Akhtar and M. Muneer. “Study of one-dimensional contaminant transport in soils using fractional calculus.” *Mathematical Methods in the Applied Sciences* (2021), pp. 6839–6856.
Google Scholar

12. Ortigueira, Manuel. *Fractional Calculus for Scientist and Engineers*. (Springer Dordrecht, 2011)
Google Scholar Crossref

13. Sujay Kumar Dolai, Arindam Mondal and Prasanta Sarkar. “A new approach for direct discretization of fractional order operator in delta domain.” *Facta universitatis-series: Electronics and Energetics*, (2022), pp. 313–331.
Google Scholar

14. Yongsheng Hong, Songchao Chen, Yaolin Liu, Yong Zhang, Lei Yu, Yiyun Chen, Yanfang Liu, Hang Cheng, Yi Liu, “Combination of fractional order derivative and memory-based learning algorithm to improve the estimation accuracy of soil organic matter by visible and near-infrared spectroscopy”, *CATENA*, (Elsevier, 2019) pp. 104–116,
Google Scholar

You do not currently have access to this content.

Pay-Per-View Access $40.00

BUY THIS ARTICLE