IGS NEWS

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Contents

Message from President

Dear Distinguished Members,

I hope you all are in good health and safe with your family. As we continue to advance in our understanding of earth beneath our feet, I am honoured to address you in this edition of our IGS newsletter. Our society remains committed to promoting excellence in geotechnical engineering, and I am thrilled to see the incredible works being done by our members. From innovative research to practical applications, your dedication to our field is truly inspiring.

The IGS website is getting updated for the upcoming elections, aiming for a comprehensive approach to ensure the integrity and efficiency of the voting process which will be conducted online using advanced OTP (One-Time Password) received on mobile/e-mail, for Two-Factor authentication. The team led by Ms. Aarti Bhargava is working hard to complete the Phase II developments of the website and I appreciate the efforts of the team. Our membership numbers are steadily rising with an increase of about 100 life members during this quarter, and the team under the guidance of Prof. S.K. Prasad, is currently prioritizing the addition of more institutional and associate members to our society. I am glad that the Professional Forum Committee led by Dr. Jay Kumar Shukla has initiated a new webinar series and the first session of the series was delivered by Dr. Sivaraman S., Asst. Manager – Geotechnical, L&T GeoStructure Pvt Ltd on June 20, 2024 in online mode. This platform provides opportunity to young geotechnical professionals for sharing their project experience, work insight and learning which will be helpful to other geotechnical professionals and budding geotechnical engineers to understand and learn from their experiences. A technical webinar on "Landslide Risk Assessment and Protective Measures" was jointly organized by Institution of Engineers India Kochi Chapter, Indian Geotechnical Society and Indian Concrete Institute on June 7, 2024. Prof. Satyendra Mittal delivered technical talk on Taming the Mountain through Stitching and Prof. D. Neelima Satyam Delivered Technical Talk on Landslide modelling, monitoring and mitigation in fragile Himalayan Slopes. The Financial Committee, under the leadership of Er. Ravikiran Vaidya, is overseeing the budget for this fiscal year and offering financial assistance to local chapters for event organization. I commend their dedication and efforts in this regard.

ISSMGE TC 220 monthly lecture series is progressing well with eminent speakers across the globe and so far 11 sessions has been completed. I appreciate the efforts of team led by Dr. D. Neelima Satyam. The official website of the 1st Geotech Asia was launched by Dr. Marc Ballouz, President ISSMGE and the official logo of the conference was unveiled by Dr. Keh Jian Shou, ISSMGE, Vice President Asia on May 30, 2024 in zoom platform. The conference will take place from 7th to 10th October 2025 in Goa. Abstract submission for the conference is open and request members to submit your technical contributions. I appreciate Prof. Ashish Juneja, Prof. Dasaka S. Murty and team for the efforts put for the buildup of the conference. Had opportunity to attend the Fourth International Conference on Geotechnical Engineering-Iraq and the Warith International Conference of Engineering Sciences-2024 at Al Anbiya University, Karbala, Iraq from April 17-18, 2024 and delivered an

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invited lecture, also had the opportunity to invite participants for 1st Geotech Asia. Attended the 8th International Conference on earthquake Geotechnical Engineering held at Osaka, Japan from 7-10 May, 2024. Happy to inform that we had the first India-Japan-Korea trilateral workshop at Kyoto University, Japan on May 11, 2024. Thanks to all the participants from India. Also had the opportunity to invite the Korean and Japanese delegates to first Geotech Asia Conference at Goa, India. I commend the efforts of the team, led by Prof. A. Murali Krishna, in engaging with various Geotechnical Societies and for coordinating the trilateral workshop in Kyoto, Japan. I had the pleasure of attending a special meeting with the Executive Committee members and several esteemed senior members of the Nepal Geotechnical Society (NGS) and invited the team to first Geotech Asia. During the meeting, I was deeply honored to be conferred Honorary Membership by NGS, a distinction shared by only two individuals prior: former Nepalese Minister Dr. Ganga Lal Shrestha and Prof. Dr. Ikuo Towhata, past Vice President, ISSMGE. This recognition truly humbles me, and I am grateful for the Nepal Geotechnical society's kindness and appreciation. The 1st IGS-SLGS Joint webinar series was held on June 18, 2024 in Zoom platform. From SLGS, Prof. Athula Kulathilaka, delivered technical talk on Rain Induced Slope Failures and Rectification Techniques and from IGS, Prof. D. Neelima Satyam delivered technical talk on Rainfall Induced Landslides - Monitoring and Mitigation Measures. I appreciate the efforts of Dr. A.P. Singh, Hon Secretary IGS for coordinating the webinar and the entire IGS and SLGS team for the successful conduct of the event.

Under the team led by Prof. Ashish Juneja, revitalization of local chapters is progressing. IGS Pune chapter has organised a one-day event in connection with its 20th year of formation on April 3, 2024. IGS Kochi chapter celebrated its 15th year of formation at Recca Club on April 9, 2024, 5-day webinar series on "Advances in Geotechnical Engineering" was organized by IGS Shimla chapter from April 30, 2024 in Google meet platform. IGS Bengaluru chapter celebrated its Diamond Jubilee (60th year of formation) at IISc Bangalore on May 25, 2024. The jubilee celebration was followed by a workshop on the IGS Foundation, superannuation function of Prof. H.N. Ramesh and honoring of 10 senior members of the IGS Bangalore chapter - Prof. A Sridharan, Prof. K.S. Subbha Rao, Prof. B.R. Srinivasa Murthy, Prof. P.V. Sivappullaiah, Prof. M.R. Pranesh, Prof. V.S. Chandrasekaran, Prof. K.N.V. Rao, Er. L.V. Sreerangaraju, Er. H.V. Eswaraiah, and Prof. T.N. Ramamurthy who have contributed enormously for the geotechnical engineering in the country. A two days' national symposium on recent advances in Geotechnical Engineering (RAGE-2024) was organized by IGS Surat chapter on June 7-8, 2024 at Avadh, Utopia, Surat. IGS Jalandhar chapter organized a five days' online short term course on Recent advances in Transportation Geotechnics: Industry Perspective (RATG-IP) on June 24, 2024.

The team under the leadership of Prof. Dasaka Murthy is doing great job for the formation of new chapters, the 54th chapter of Indian Geotechnical Society - IGS Palakkad, was inaugurated at IIT Palakkad on April 10, 2024. The planning for opening new chapters at Dehradun, Lucknow, Madurai, Gorakhpur and Aligargh is progressing. During this period new student's chapters were opened and various activities were conducted by numerous student chapters pan India. The 34th, 35th and 36th student chapters of IGS Pune were inaugurated at Trinity Academy of Engineering, Trinity College of Engineering and Research and KJ College of Engineering and Management Research on April 3, 2024. A two-day international conference on novelties in geotechnical engineering, ICNGE 2024 was organized by the department of civil engineering of SCMS College of Engineering on April 25, 2024. I applaud the efforts of the team led by Prof. G. Sridevi for the formation of new students' chapters and making the students' chapters alive by conducting numerous activities.

I thank the team, under the guidance of Prof. Thyagaraj for planning major events for the young geotechnical engineering community. Starting of YGE Annual/ Biannual Lecture, YGE Webinar Series and the formation of YGE executive committee is under discussion. Documents for IGS Virtual library is uploaded and the continuous updating of the data is done by the team headed by Prof. B.K. Maheshwari. I am happy to note that the IGTJ could maintain the same impact factor of 1.4 in both years 2022 and 2023 in the data of Clarivate, which is a positive sign that we can further improve it with good quality, timely review process and good contributions in IGTJ. I appreciate the efforts of team guided by Prof. Deepankar Choudhury and the editorial board, for their tremendous efforts in maintaining the good quality of the journal. The team headed by Prof. Ravi Shankar Jakka is working hard to publish the IGS newsletter on time with good quality technical matter and IGS news which enables the growth of IGS nationwide. Our members are attending the meetings of various panels of the CED committee and making contributions from IGS in the revision and formation of the new codes. I thank the efforts of the team under the leadership of Prof. H.N. Ramesh for their assistance with BIS activities.

The involvement and contribution of women geotechnical engineers in various activities of IGS is commendable and I appreciate the team led by Prof. G. Madhavi Latha. The planning for purchase of land for IGS House in Delhi is progressing with the efforts of team led by Dr. A.P. Singh, Hon. Secretary IGS. The team led by Prof. R. Ayothiraman is focussing on starting consulting services through panels/committees of identified experts across the various domains of geotechnical engineering. The team headed by Prof. K. Balan, is working out the modalities for training field and lab personnel to improve the quality of geotechnical engineering. IGS is working closely with NABL to enhance the standard of laboratory testing and provide more accessors for NABL under the team led by Dr. K. Muthukkumaran. Important events of IGS is being uploaded to various social media platforms to improve the visibility of activities of IGS. I appreciate the efforts of the team, headed by Prof. Anitha G. Pillai for their efforts. The team, led by Prof. Ravi Shankar Jakka is doing a good job in providing PLAXIS software support to student members.

The 239th National Executive Committee meeting was held at Avadh, Utopia, Surat, on June 8, 2024. On behalf of IGS National executive committee, I extend our sincere thanks for the wonderful hospitality and the good arrangements made for the 239th National executive committee meeting made by IGS Surat Chapter led by Prof Chandresh Solanki. Looking forward to the upcoming events organised by local chapters of IGS, and IGC 2024 to be held at MIT Aurangabad and I thank the organising team led by Prof. Manish Dixit for their hard work. I encourage you to read about the latest developments, share your own experiences, and get involved in our upcoming events. I conclude with the words of Mahatma Gandhi "The Future Depends on What you do today". As we move forward let us continue to support one another, foster collaboration, and push the boundaries of what is possible in Geotechnical Engineering. Together we can and We Will.

Wishing you all good health and happiness.

Dr. Anil Joseph

GeoSutra 6:
One-dimensional Consolidation Theories – From Terzaghi to Real Life – Journey over a Century

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Introduction

The classic theory of one-dimensional consolidation of fine-grained soils in many ways can be considered as the genesis of Soil Mechanics as it was called earlier and Geotechnical Engineering as it is currently known. This theory which also helped in explaining the concept of effective stress, was able to explain how the soil layers consolidate following the dissipation of excess pore pressures and, in the process, generate settlements. Since Terzaghi adopted the basic theory of conduction of heat in solids, several simplifying assumptions had to be made. They are -

1. The (fine-grained) soil layer is homogeneous;
2. Soil is saturated;
3. Darcy's law is valid;
4. Thin layer – implies the applied total stress is constant with depth;
5. Flow of water for dissipation of excess pore pressure and the deformation are vertical; hence, one-dimensional consolidation;
6. Linear stress-strain relation; Coefficient of compressibility, $a_v = \Delta e/\Delta\sigma'$ or coefficient of volume change, $m_v = a_v/(1+e)$ or $m_v = \Delta e/\Delta\sigma'(1 + e)$ or $\Delta\varepsilon_v/\Delta\sigma'$ where e – void ratio, $\Delta\sigma'$- increment of applied stress, $\Delta\varepsilon_v$ – increment in volumetric or axial (in 1-D case) strain;
7. Corollary of 2: The applied stress increment has to be small to ensure linearity;
8. Constant properties, i.e., compressibility parameter, m_v, and coefficient of permeability, k, and consequently the coefficient of consolidation, $c_v = k/m_v.\gamma_w$ are constant during the process of consolidation;
9. Monotonic loading, i.e., the load is applied instantaneously;
10. Soil/Layer is normally consolidated (implied)

The governing equation for one-dimensional consolidation of soil is derived as

$$\frac{\partial u}{\partial t} = \frac{k}{\gamma_w m_v}\frac{\partial^2 u}{\partial z^2} = C_v\frac{\partial^2 u}{\partial z^2} \qquad (1)$$

where u is the excess pore pressure. If u is replaced by temperature, T, and c_v with the thermal conductivity of solids, this equation becomes applicable to the conduction of heat in solids.

The initial and the boundary conditions for two-way drainage are

1. $u = u_i$ or u0 at time t = 0 following monotonic loading;
2. $u = 0$ at $z = 0$, free draining top surface; and
3. $u = 0$ at $z = 2H$ or H_t where H and H_t are the length of maximum drainage path and the thickness of the soil layer. For layer on an impermeable base, i.e., drainage from one face alone, $\delta u/\delta z = 0$ at z = H and the flow would be only vertically upward.

The solutions for variation of pore pressure with depth and time and degree of consolidation as well as degree of average pore pressure dissipation, are

$$u = \sum_{m=0}^{m=\infty}\frac{2u_0}{M}\mathrm{Sin}\frac{M_z}{H}\exp(-M^2T_v) \qquad (2)$$

$$U_{av} = 1-\sum_{m=0}^{m=\infty}\frac{2}{M^2}\exp(-M^2T_v) \qquad (3)$$

where time factor T_v or $T = c_v.t/H^2$ with t – time.

Fig. 1 to 3 shows the Excess Pore Pressure vs Depth for Different Time Factors, Degree of Consolidation vs Time Factor – Linear Scale, and Degree of Consolidation vs Time Factor – Log scale.

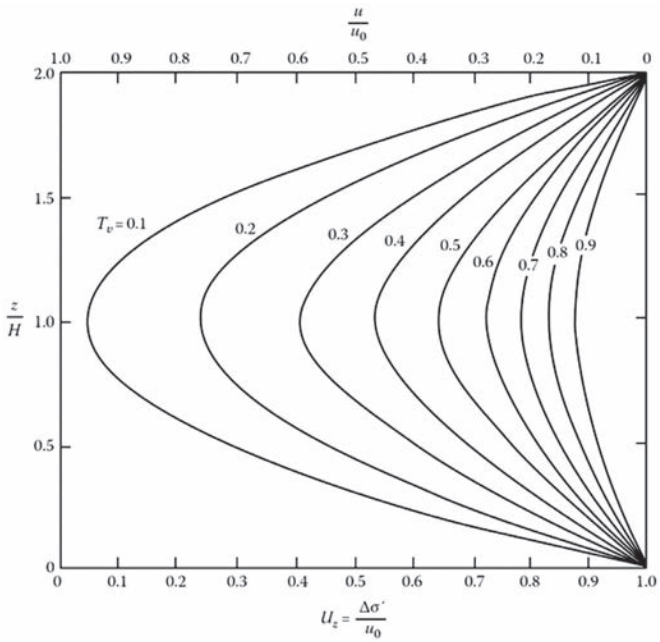

Fig. 1 : Excess Pore Pressure vs Depth for Different Time Factors (after Das, 2019)

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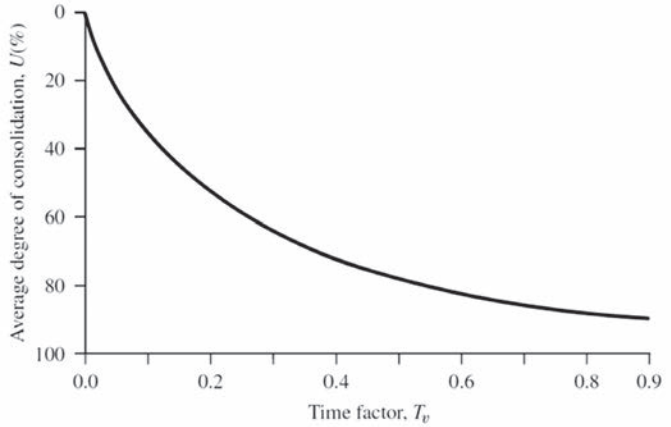


Fig. 2 : Degree of Consolidation vs Time Factor – Linear Scale

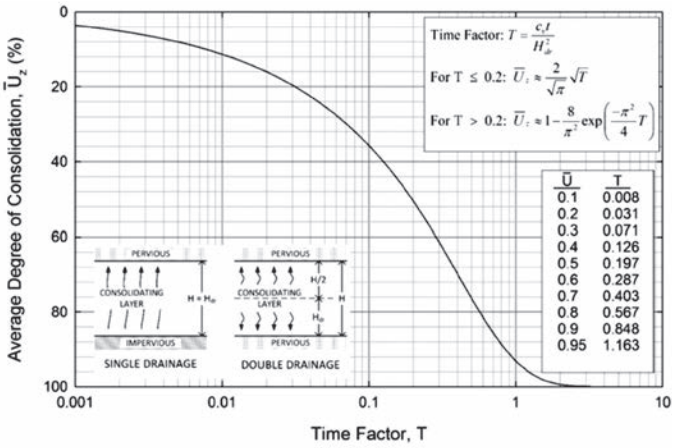


Fig. 3 : Degree of Consolidation vs Time Factor – Log scale

Solutions for different distributions (Fig.4) of initial excess pore pressures are available but rarely used.

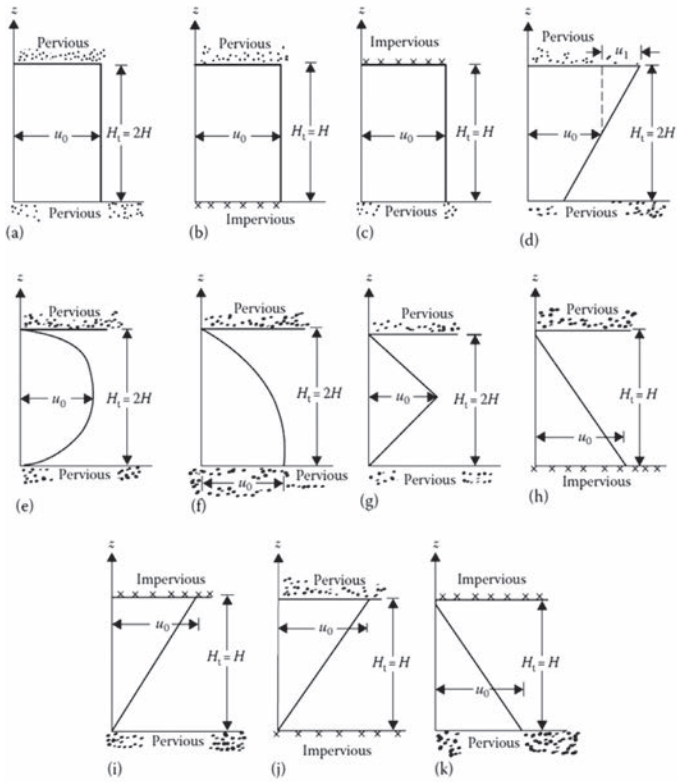


Fig. 4 : Initial Excess Pore Pressure Distributions (after Das, 2019)

Several extensions to theory of one-dimensional consolidation based on linear void ratio – effective stress relation are available.

(i) ***Time Dependent Loading/Ramp Loading:*** Olson (1977) presented an analytical solution for one-dimensional consolidation for applied load increasing linearly up to end of construction (Fig. 5a) denoted by time, t_c. Solutions are obtained and results presented in Fig. (5b) for different time factors, T_c ($=c_v.t_c/H^2$).

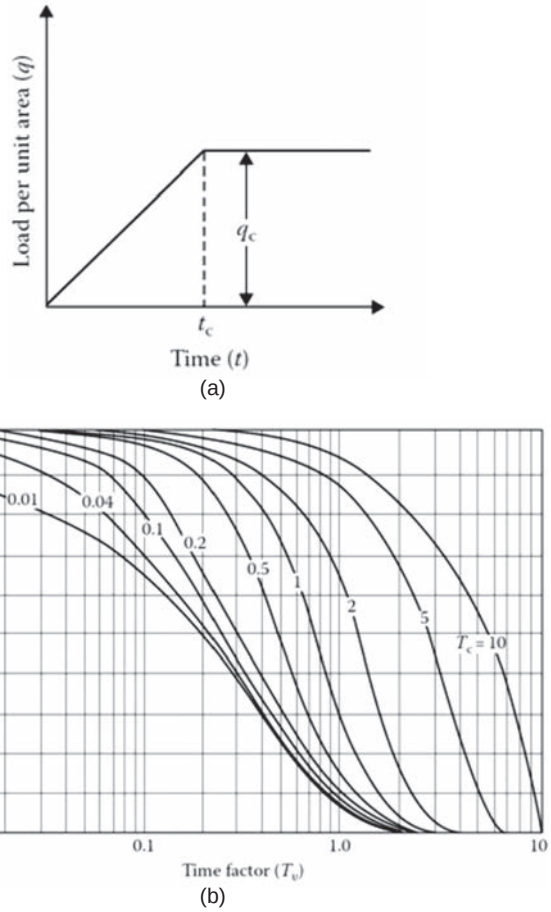


Fig. 5 : (a) Ramp Loading and (b) Degree of Consolidation vs Time Factor – Function of T_c (after Das, 2019)

(ii) ***Two-layered Soils:*** Analytical solutions for consolidation of two-layered soils for limited conditions only are available since coefficients of volume change, m_{v1} & m_{v2}, of permeability, k_1 & k_2 and of consolidation, c_{v1} & c_{v2} respectively for the two layers need to be considered. Scott (1963) Several boundary conditions are possible, viz., (i) PTPB, (ii) PTIB and (iii) ITPB where P and I refer to permeable and impermeable and T and B to top and bottom surfaces respectively. Scott (1963) presents a numerical (finite difference) approach and derives the governing equation for continuity of flow as

$$k\frac{\partial^2 u}{\partial z^2} = \frac{1}{2}\left[\frac{k_1}{(Vz)^2} + \frac{k_2}{(Vz)^2}\right]\left(\frac{2k_1}{k_1+k_2}u_{1,t} + \frac{2k_2}{k_1+k_2}u_{3,t} - 2u_0, t\right) \quad (4)$$

and for consolidation as

$$u_{0,t+Vt} = \frac{VtC_{v1}}{(Vz)^2}\frac{1+k_2/k_1}{1+(k_2/k_1)(C_{v1}/C_{v2})}\left(\frac{2k_1}{k_1+k_2}u_{1,t} + \frac{2k_2}{k_1+k_2}u_{3,t} - 2u_0, t\right) + u_0, t \quad (5)$$

where u_t and $u_{t+\Delta t}$ are the excess pore pressures at the current time and the next time increment, Δz and Δt are depth and time increments or steps, respectively.

Luscher (1965) presents results (Fig. 6) for one typical case wherein the lower half of the clay layer has smaller coefficient of consolidation that the upper one.

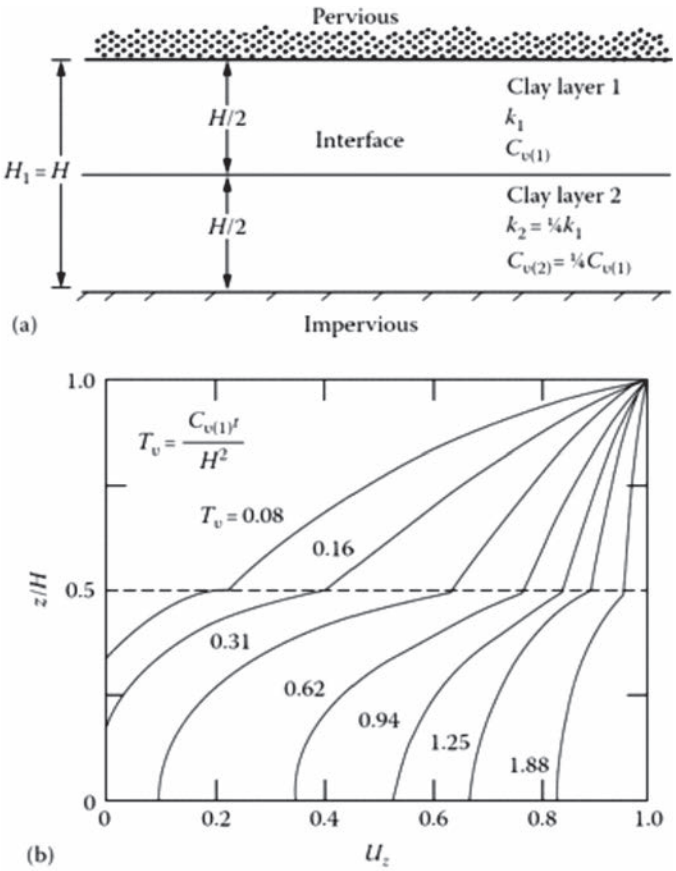


Fig. 6 : Consolidation of Two-layered Soils

Non-linear Theory of Consolidation

Linear theories of consolidation are strictly valid only for very small stress increments for which the change in void ratio with increase of effective stress can be approximated as linear. In practice, the applied loads range from 30.0 to even 100 kPa for which range it is imperative to consider linearity in the void ratio versus log of effective stress plot (Fig. 7).

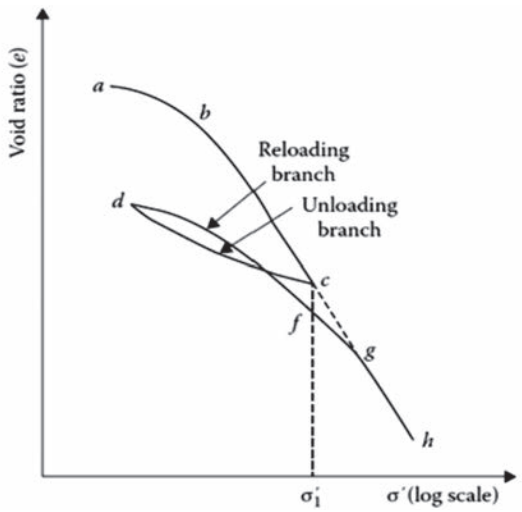


Fig. 7 : e – log σ' Plot

Davis and Raymond (1965) were probably the first to consider the effect of nonlinearity in the void ratio – effective stress relationship. They present an elegant and very simple theory based on

$$e = e_0 - C_c.\log(\sigma'/\sigma'_0) \qquad \text{Eq. (6)}$$

where e & e_0 and σ' & σ'_0 are current and initial void ratios and effective stresses, respectively, and C_c – the compression index representing the linearity of void ratio versus log effective stress curve. Differentiating Eq. 6, the coefficient of volume change, mv, is obtained as inversely proportional to effective stress as

$$m_v = A/\sigma' \qquad (7)$$

where $A = 0.434.C_c/(1 + e)$ – a constant. The coefficient of permeability, k, is assumed to very inversely and thus the coefficient of consolidation, c_v, is considered to be constant during consolidation.

The governing equation with non-linear variation of void ratio with effective stress is

$$-C_v\left[\frac{1}{\sigma'}\frac{\partial^2 u}{\partial z^2}+\left(\frac{1}{\sigma'}\right)^2\left(\frac{\partial u}{\partial z}\right)^2\right]=\frac{1}{\sigma'}\frac{\partial \sigma'}{\partial t} \qquad \text{Eq. (8)}$$

Eq. (8) is simplified in to the form similar to that for the linear theory as

$$C_v\frac{\partial^2 w}{\partial z^2}=\frac{\partial w}{\partial t} \qquad \text{Eq. (9)}$$

where, $w=\log_{10}\frac{\sigma'}{\sigma'_f}=\log_{10}\frac{\sigma'_f-u}{\sigma'_f}$ the parameter w is defined as the logarithm of current, σ' and final, σ'_f effective stresses. The most significant effect of consideration of the non-linearity of void ratio – effective stress relation is the uncoupling of rate of settlement with rate of dissipation of excess pore pressure. So instead of 'Degree of Consolidation, U, alone we have 'Rate of Settlement, U_s' and 'Rate of Pore Pressure Dissipation, U_p' which differ from each other.

Fig. 8 presents the solution for Eq. 9, for non-linear consolidation for one-dimensional consolidation as in Oedometer test with the usual boundary and initial conditions. The most interesting result is that the degree of settlement, U_s, versus log time factor curve, is identical to the degree of consolidation, U, versus time factor curve from the linear theory because of the elegant transformation. However, the degree of maximum pore pressure dissipation, U_H ($=u_H/q$), defined as the rate of dissipation of excess pore pressure at the middle of a layer with two-face drainage or at the impervious boundary for one face drainage, is slower than the degree of settlement and is dependent of the final to initial effective stress ratio, σ'_f/σ'_i ($= 1 + \Delta\sigma'/\sigma'_i$). In other words the conventional stress increment ratio, $\Delta\sigma/\sigma'_0$, has significant effect on pore pressure dissipation. Larger the ratio, σ'_f/σ'_i, slower would be the rate of pore pressure dissipation. The coefficient of consolidation, c_v, obtained from stress increment ratio, $\Delta\sigma/\sigma'_0$, of 1.0 would not hold for any other stress increment ratios while being applicable for degree of settlement, U_s. The time factor, T_v, for 50% degree of settlement,

U_s, is 0.197, the same as for Terzaghi's liner theory but is 0.44, 0.53, 0.61 and 0.69 for U_H, final to initial stress, σ'_f/σ'_i ratios of 2, 4, 8 and 16 which correspond to stress increment, $\Delta\sigma'/\sigma'_i$, ratios of 1, 3, 7 and 15 respectively.

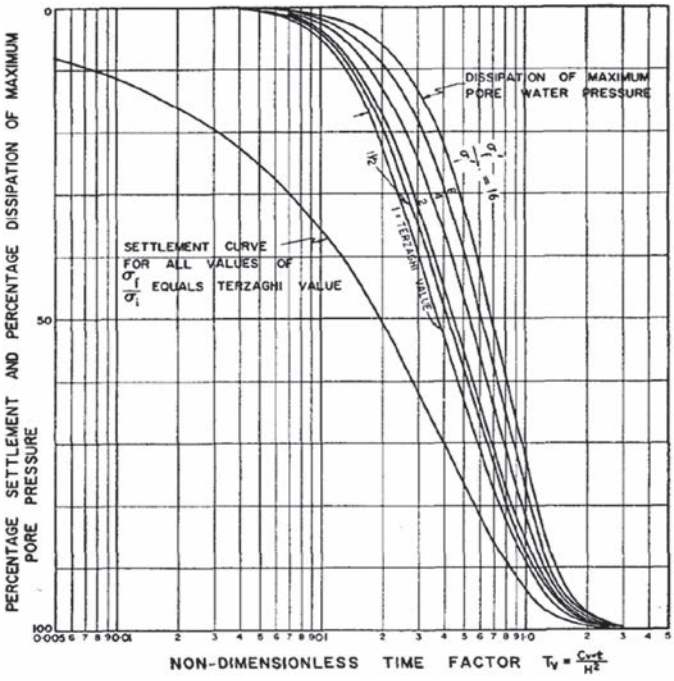
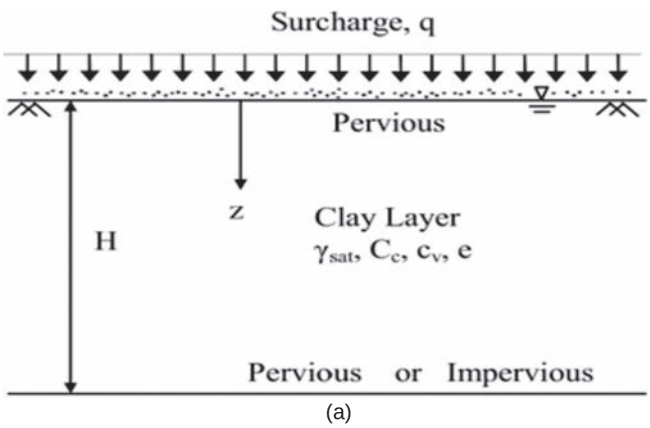


Fig. 8 : Degrees of Settlement, Us and Maximum Pore Pressure Dissipation, UH vs Time factor, T

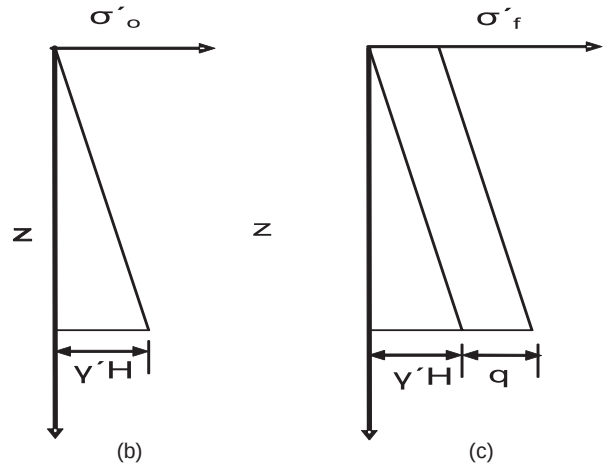
Consolidation of Thin and Thick Layers

Terzaghi's linear theory of consolidation does not distinguish between consolidation of thin or thick soil layers as the phenomenon or the process is independent of initial or final stresses. On the contrary, the non-linear theory of consolidation is sensitive to the final to initial stress ratio, σ'_f/σ'_i. For a thin layer this ratio can be considered constant as the initial stress, σ'_i, does not vary much with depth. However for a thick layer the final to initial stress ratio, σ'_f/σ'_i, can vary over a very large range.

Fig. 9(a) depicts a thick layer of thickness, H, consolidating under a uniform surcharge, q. The initial in situ stress increases linearly (Fig. 9b) from a very low value near the top to a significant one at the bottom. For example, with submerged unit weight of 6 kN/m^3 the initial effective vertical stresses at



(a)

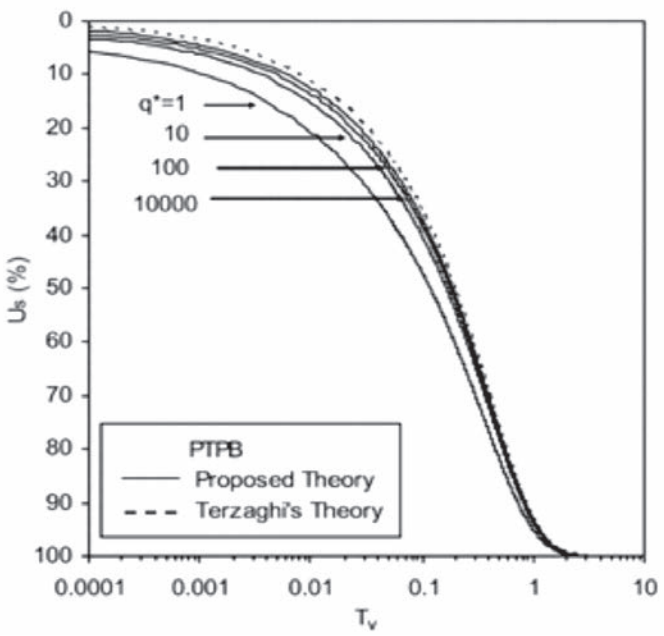


(b) (c)

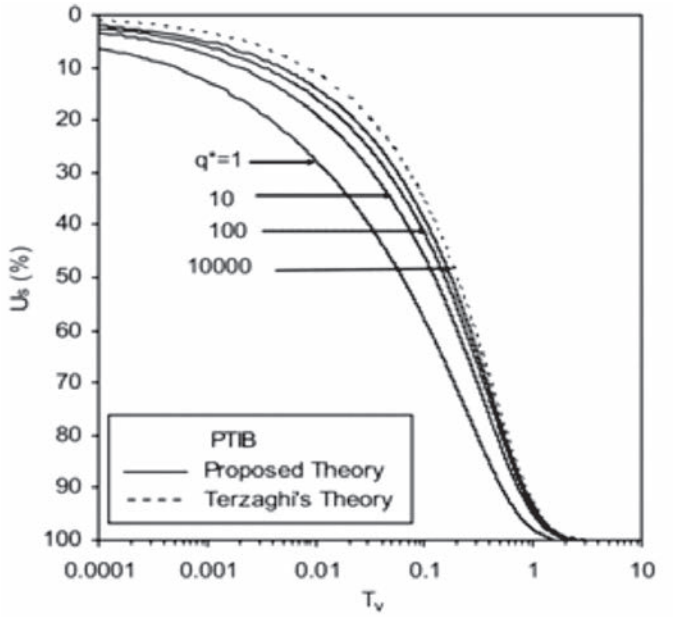
Fig. 9 : (a) Thick Layer, (b) Initial effective stress, σ_i or σ_0 vs Depth, z and (c) Final stress, σ_f, vs Depth, z.

1.0 m and 10 m depths are respectively 6 kPa and 60 kPa. If a uniform surcharge of 60 kPa is applied, the final stresses (Fig. 9c) become 70 kPa and 120 kPa and the stress ratios, σ'_f/σ'_i. 7 and 2. While the degree of settlement, U_s, is independent of the stress ratio, σ'_f/σ'_i. the degree of excess pore pressure, U_p, would be very different.

Results for consolidation of a thick layer (Ayub Khan and Madhav, 2012) are shown below (Fig. 10). It should be noted that symmetry for two-face drain boundaries is not valid for consolidation of thick layers since the stress ratio increases with depth and not symmetric. As such the following two conditions are considered: (a) Two-face drainage – PTPB (Pervious Top & Pervious Bottom) and (b) One face drainage – PTIB (Pervious Top & Impervious Bottom). The surcharge stress is normalized with effective stress, γ'.H, at the bottom boundary of the layer and results presented for a range of values of q* = q/γ'H. Large values of q* correspond to thin layers and q* reduces with increased thickness of the layer.



(a)



(b)

Fig. 10 : Degree of Settlement for Thick Layers (a) Two-Face Drainage, PTPB and (b) One-Face Drainage, PTIB

For thick layers, the degree of settlement is a function of applied surcharge stress, q*. The degree of settlement, U_s, increases with reducing values of q*, i.e., thicker layer settle faster than thin layers.

Variations of Time factors, T_{50} and T_{90} with q* are shown in Fig. 11. Both the time factors increase with increasing q* and tend to equal the Terzaghi values of 0.197 and 0.848 respectively for extremely thin layer, i.e., q* = ∞.

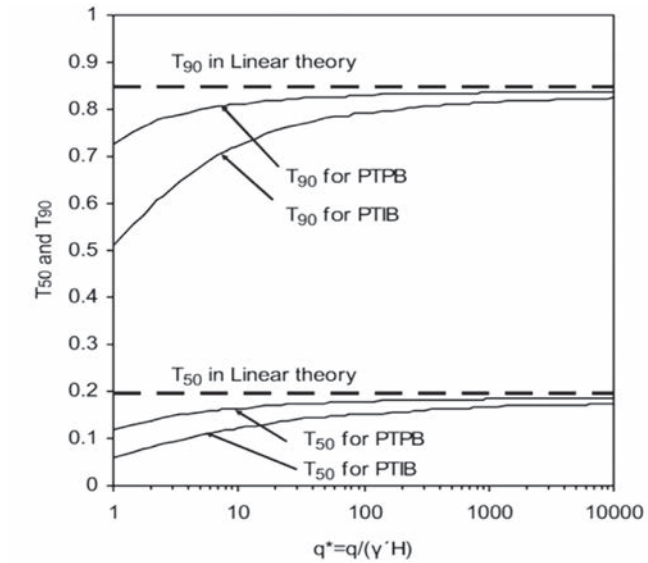


Fig. 11 : Time Factors T_{50} and T_{90} vs q*

The degree of pore pressure, U_p, dissipation with time factor, T, as a function of normalized applied surcharge, q*, for the two drainage boundary conditions, PTPB and PTIB, are given below in Fig. 12. U_p based on non-linear theory is slower than the corresponding values for Terzaghi's linear theory the difference increasing with increasing q*, i.e., for the same surcharge stress, q, with reducing thickness of the layer.

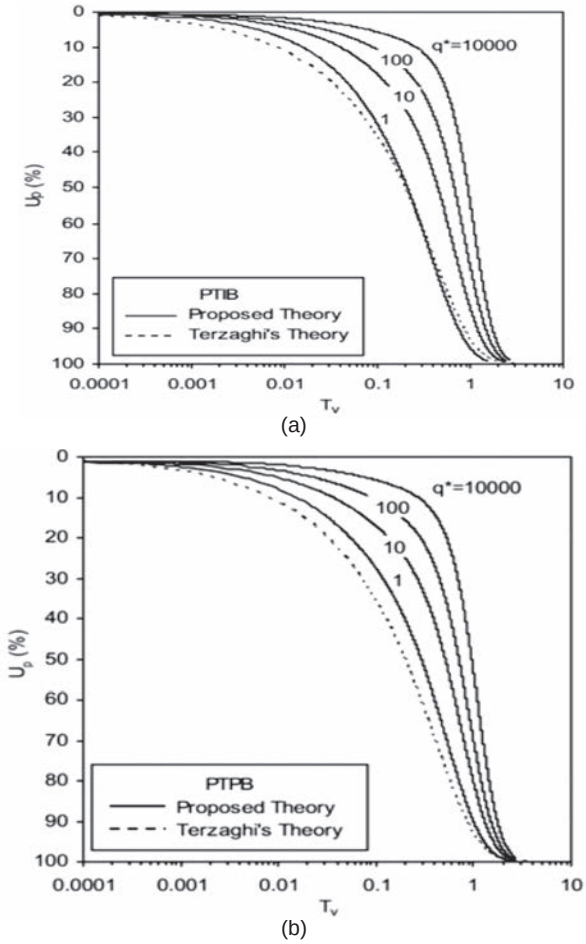


Fig. 12 : Average Degree of Pore Pressure Dissipation: (a) PTPB and (b) PTIB

Conclusions

It has been nearly a century since Terzaghi presented the path-breaking theory of one-dimensional consolidation. It is high time one recognizes its value and its limitations. GeoSutra 6 presents solutions that consider linear void ratio – log effective stress relationship and presents solutions for the consolidation phenomenon, one of the cornerstones of Geotechnical Engineering. The major consequences of this approach is the uncoupling of degrees of settlement and average pore pressure dissipation, the effect of thickness of the consolidating layer, and non-symmetry of two-face drainage (PTPB).

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SUMMARY OF Ph.D THESES

Title of Thesis: **Geotechnical Behavioural Studies on Low Organic Soil Treated with Chitosan and Casein Biopolymers**

Name of the Student: Dr. Romana Mariyam Rasheed

Supervisor: Dr. Arif Ali Baig Moghal

Department & Institute: Department of Civil Engineering, National Institute of Technology Warangal (NITW), Warangal, Telangana

SUMMARY: The current study investigates the influence of two hydrophobic biopolymers, namely chitosan and casein, on the modification of strength, compressibility and stability under saturated conditions of low organic soil. The effect of dosage and curing period on the efficacy of biopolymer-treated soil is also evaluated. The multivariate non-linear regression models were developed to predict strength and compressibility parameters, displaying an R2 value of 0.99 and establishing a perfect correlation between the dependent and independent variables. From reliability analysis, Chitosan outperformed casein and attained a reliability index of 3 at 1.2% and 2.25% dosages for application as an embankment and subgrade material. This research work demonstrates the applicability of biopolymer-treated low organic soil for bulk civil engineering applications in adopting suitable dosages and mixing criteria.

Title of Thesis: **Interference Effects of 2D and 3D Footings Resting on Homogeneous Soils**

Name of the Student: Dr. Sarvesh R.

Supervisor: Dr. Anjan Patel and Dr. Srinivasan V.

Department & Institute: Department of Civil Engineering, Visvesvaraya National Institute of Technology, Nagpur, Maharashtra

SUMMARY: Urbanization and land scarcity have led to footings being constructed in close proximity, affecting their settlement behavior. This study introduces a simplified approach to assess the settlement behavior of both symmetrical and asymmetrical footings placed near each other. A detailed parametric study examines the interference effects on settlements by varying aspect ratios, clear spacing, and loading intensity. FEM and FELA methods are used to investigated ultimate load-carrying capacity under different conditions, providing valuable insights for foundation design in densely built environments. These findings are crucial for ensuring the stability and reliability of structures in urban areas where space is limited.

Title of Thesis: **Influence of Geosynthetic Encasement on the Performance of Stone Column Groups in Clayey Soil**

Name of Student: Dr. Srijan

Supervisor: Prof. A.K. Gupta

Department & Institute: Delhi Technological University, New Delhi

SUMMARY: Geotechnical engineers face challenges with soft soils, weak subsurface conditions, and poor fill soils. Granular stone columns offer structural support, but their effectiveness is compromised by poor lateral confinement. This study explores the use of vertical and horizontal encasement to reinforce stone columns and prevent bulging failure under compressive loads. Model tests were conducted on stone columns with diameters of 50, 75, and 100mm, using various reinforcement configurations. Results indicated that vertical encasement, especially full-length with G2 geotextile, provided the best load capacity and reduced settlement. Group analysis showed decreased load capacity with increased S/D ratios. Numerical analysis validated the experimental findings.

Title of Thesis: **Response of Waste Foundry Sand Backfilled Retaining Wall**

Name of Student: Dr. Ankit Kumar

Supervisor: Dr. Aditya Parihar

Department & Institute: Department of Civil Engineering, Thapar Institute of Engineering and Technology, Patiala, Punjab

SUMMARY: The thesis investigated the overall viability of the replacement of natural sand with waste foundry sand (WFS) in the backfill of reinforced retaining walls. Physical, chemical, geotechnical, microstructural, thermal, pH and leaching properties of different types of WFS samples were quantified to check the suitability of WFS for backfill of retaining walls. Earth pressures and wall displacements were measured through laboratory-scale physical model experiments performed on a 0.5 m high retaining wall. Additionally, numerical studies and life cycle assessments were conducted. The study aims to be a step in the direction of achieving sustainability by transferring WFS from "Landfill to Backfill".

Title of Thesis: **Assessment to Enhance Quality Control and Strength Parameters in the Laboratory and Field by Using Integrative Testing Devices for Pavement Applications**

Name of Student: Dr. Sidhu Ramulu Duddu

Supervisor: Dr. Hariprasad Chennarapu

Department & Institute: Department of Civil Engineering, Ecole Centrale School of Engineering, Mahindra University, Bahadurpally X Road, Jeedimetla, Hyderabad, Telangana

SUMMARY: This study addresses the limitations of traditional compaction quality control (QC) methods for flexible pavement materials, which are time-consuming and unreliable. It proposes using semi- and non-destructive techniques (SDT and NDT) for their accuracy and efficiency. These methods measure resistance, deformations, and deformation modulus in both laboratory and field conditions for various test configurations of mechanical and chemical stabilization. The research focuses on evaluating the modulus (EPLT, ELWD, and EFWD), modulus improvement factors (MIFPLT, MIFLWD, and MIFFWD) and strength parameters (CBR, UCS, DPI, DR, and ELWD) of stabilized and unstabilized materials using SDT and NDT devices. Results show improved modulus and strength parameters with increased compaction energy, confirming the effectiveness of SDT and NDT as QC methods. Hence, the SDT and NDT devices are essential to be used instead of the sand cone, core cutter, and plate load test as a quick and low-cost alternative for assessing quality control and strength parameters in terms of dynamic penetration index, dynamic resistance, deformation modulus, modulus improvement factor (MIF), and strength improvement factor (SIF) in the laboratory and field conditions.

Title of Thesis: **Bioimprovement of Geotechnical Properties of Expansive Soil**

Name of Student: Dr. Rani B. Wath

Supervisor: (Prof.) Dr. Sunil S. Pusadkar

Department & Institute: Department of Civil Engineering, Governemnt College of Engineering, Jalgaon. Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon

SUMMARY: This research focuses on evaluating the effect of MICP on geotechnical properties of expansive soil. Four different types of bacteria; Bacillus pasteurii, Bacillus subtilis, Bacillus megaterium and Pseudomonas putida were used to carry out the MICP treatment. The parameters studied were bacteria type, bacterial concentration and reaction periods. The geotechnical properties such as Atterberg limits, unconfined compressive strength (UCS), CBR, swelling pressure test, flexural test, and durability study were performed to evaluate the efficacy of MICP treatments. Also the microstructural analysis was carried out by FESEM and XRD tests. The improvement in UCS, CBR and flexural values after MICP treatments were notable. The reduction in Atterberg limits and swelling pressure was observed.

Title of Thesis: **Pore-Scale Models for Predicting Water Retention and Flow in Unsaturated Soils**

Name of Student: Dr. Suaiba Mufti

Supervisor: Dr. Arghya Das

Department & Institute: Department of Civil Engineering, Indian Institute of Technology Kanpur, Uttar Pradesh

SUMMARY: The relationship between soil suction and its water content, called the soil water retention curve (SWRC), and the variation of hydraulic conductivity of soils with soil suction, called the unsaturated hydraulic conductivity function (UHCF), play a pivotal role in unsaturated soil mechanics. This research focuses on utilizing basic geotechnical properties of soils, i.e., grain size distribution and porosity, to develop pore-scale numerical frameworks for reliable prediction of SWRC and UHCF. The proposed models adopt a grain-based approach, wherein the pore networks are extracted from the synthetic soil samples through which fluid flow is simulated to derive SWRC and UHCF.

Title of Thesis: **Effects of 3D Morphological Characteristics of Sand on Multi-Scale Intergranular and Sand-Geosynthetic Interactions**

Name of Student: Dr. Rizwan Khan

Supervisor: Prof. Gali Madhavi Latha

Department & Institute: Department of Civil Engineering, Indian Institute of Science, Bangalore

SUMMARY: This thesis presents a comprehensive approach to quantify the 3D morphology of sand particles including their size, shape, and 3D fractal dimension through high resolution X-ray µCT scanning and spherical harmonic analysis. The present study found that the morphological parameters are interdependent and the correlation between any two shape descriptors relies mainly on the distance between the characteristic scales of these parameters. The fundamental mechanisms of intergranular and sand-geosynthetic interfacial interactions at a macro scale are correlated to the multi-scale morphological characteristics of sand particles through direct shear and interface shear tests.

Title of Thesis: **Morphological Perspectives of Sand Liquefaction and its Mitigation**

Name of Student: Dr. Balaji Lakkimsetti

Supervisor: Prof. Gali Madhavi Latha

Department & Institute: Department of Civil Engineering, Indian Institute of Science, Bangalore

SUMMARY: Though the effects of particle morphology on the liquefaction response of sands are well known, the complex interplay of the micro-level particle morphology and liquefaction response of sands remains elusive. Through carefully designed cyclic simple shear tests and digital image analysis, this thesis brings out the morphological perspectives of sand liquefaction. The fundamental mechanisms like pore pressure progression, shear strain accumulation, cyclic stiffness degradation, and strain energy dissipation are critically examined in the light of particle morphology. The effects of different soil reinforcement techniques like geotextiles, encased granular columns, coir fibres and geofoam, on the liquefaction response are quantified.

46th IGS ANNUAL LECTURE 2024

The prestigious

46th IGS Annual Lecture 2024

will be delivered by Prof. B.V.S. Viswanadham, Professor, Department of Civil Engineering, Indian Institute of Technology Bombay, Powai, Mumbai.

The topic of his lecture is

"Insights into Centrifuge-based Physical Modelling for Understanding the Performance of Geostructures"

IGS Baroda Chapter

The IGS Student Chapter at Parul University hosted a Short-Term Training Programme (STTP) on "Engineering Advances in Water Reclamation" from April 1-5, 2024, at the PIET-DS Seminar Hall. Thirty faculty members from the Civil Engineering Department attended the training programme. Mr. N.K. Oza started the event with insights into Green Audits and Sustainability. Mr. Amit Doshi, the "Rainpreneur," shared innovative rainwater harvesting strategies on the second day. A visit to the EICL Industrial Common Effluent Treatment Plant showcased advanced wastewater treatment technologies. Dr. Narendra Shrimali discussed smart water management, while Mr. Satish Panchal provided case studies on wastewater treatment plants. The final day included sessions by Dr. A.V. Shroff on ground improvement techniques, Mr. Kamlesh Joshi on techno-legal environmental solutions, and Mr. Deepak Ramchandani on historical water management practices. The programme concluded with a closing ceremony.

The IGS Student Chapter at Parul University organized a pre-conference workshop on "Application of AI and Image Processing in Civil and Geotechnical Engineering" on May 2, 2024, at PIET-116 seminar hall. Eighteen faculty members and twenty-eight PG students from the Civil Engineering Department attended the workshop. Dr. Jitesh Chavda from SVNIT Surat led the first session on Image Analysis Applications, emphasizing practical techniques. Mr. Bonny Sharma, a research scholar at SVNIT, discussed Artificial Intelligence's basics and its applications in Civil Engineering, highlighting benefits and challenges.

On 21st June, 2024, a Fire Safety training session was held for primary school students in Amodar village. The session aimed to teach children essential fire safety practices and emergency response skills. Firefighters demonstrated the use of fire extinguishers and evacuation procedures. Students learned how to identify fire hazards, the importance of smoke alarms, and the "Stop, Drop, and Roll" technique. Interactive drills ensured students practiced these skills effectively. The session concluded with a Q&A, reinforcing the importance of fire safety. The students' active participation and keen interest underscored the training's success in enhancing their safety awareness.

On 21st June, 2024, an Environment Awareness session was conducted for primary school students in Amodar village. The session aimed to educate children about the importance of environmental conservation. Topics covered included waste segregation, the benefits of tree planting, and water conservation methods. Interactive activities, such as planting saplings and creating posters, engaged the students and reinforced the lessons. The event concluded with a pledge by the children to practice and promote eco-friendly habits. The enthusiasm and participation of the students highlighted the session's success in fostering environmental responsibility.

Tree plantations by school students in Amodar fostered environmental stewardship and raised awareness about ecological issues. They also provided hands-on learning experiences about biodiversity and the importance of green spaces. Additionally, tree planting fostered a sense of community and responsibility among students. Lastly, it contributed to the beautification and sustainability of their local environment.

IGS Bengaluru Chapter

IGS Bengaluru Chapter celebrated its Diamond Jubilee on 25th May 2024 in the Faculty Hall of the Indian Institute of Science. Dr. Anil Joseph, President, IGS was the guest of honour for the event. The event comprised four sessions. The inaugural session started with the welcome address by Prof. G. Madhavi Latha, Chair, IGS Bengaluru Chapter, followed by the address of Dr. A.P. Singh, Secretary, IGS, on the activities of IGS. Dr. Raghuveer Rao, Vice-Chair, IGS Bengaluru Chapter presented the history of IGS Bengaluru Chapter, highlighting the glorious presence of the Chapter in various IGS national activities over the years. Prof. B.R. Srinivasa Murthy, one of the earliest members of the Chapter shared a few interesting reminiscences. Dr. Anil Joseph congratulated the Chapter on its achievements and remembered the accomplished members of the Chapter with gratitude. Recognizing the Chapter's services, IGS has felicitated the Chapter with a silver plaque, which was presented by Dr. Anil Joseph and Dr. A.P. Singh. The session was concluded with vote of thanks by Dr. Asha M. Nair, Secretary, IGS Bengaluru Chapter. The second session was on IGS Foundation, coordinated by Dr. C.R. Parthasarathy, who gave a brief overview of the objectives of IGS Foundation and the committee on IGS Foundation constituted by IGS and presented a talk on "Ethical Practices in Geotechnical Engineering". The session included a panel discussion on the IGS Foundation with Prof. T.G. Sitharam, Dr. Anil Joseph, Dr A.P. Singh, Prof. G.L. Sivakumar Babu and Prof. G. Madhavi Latha as panelists. The third session started after lunch with a technical talk by Dr. N. Ranganath on "How Vigilant the Professionals and Practicing Engineers should be while Undertaking Geotechnical Investigations". The talk was followed by the felicitation to Prof. H.N. Ramesh, who superannuated as the Principal of the University of Visvesvaraya College of Engineering (UVCE) Bangalore. The final session of the one-day event was marked by a grand celebration, during which the Chapter honoured the 10 legendary geotechnical stalwarts.

A lecture on "1D Consolidation: Accelerated Test Procedures" by Prof. R.G. Robinson from IIT Madras was organized on 19th April 2024. The lecture provided valuable data and insights on reducing the testing time of incremental load consolidation tests through modified test methods. These methods defy the conventional practice of monitoring settlements under each load increment for 24 hours, without compromising on the precision in measurements.

The IGS Student Chapter at MSRIT, Bengaluru organized an expert talk on "Geotechnical Investigation Study and Case Study on Ground Improvement" on 30th May 2024 at the Department of Civil Engineering, MS Ramaiah Institute of Technology, Bengaluru. The talk was delivered by Mrs. Sushma, Deputy General Manager - Civil, Tata Consulting Engineers Ltd., Bangalore. The lecture provided valuable information on conducting laboratory experiments related to ground improvement and discussed case studies on soil stabilization. Mr. Venugopal, NABL Coordinator, also attended the event. The event was coordinated by Dr. Asha M. Nair, Head of the Civil Engineering Department.

IGS Bengaluru Chapter organized an expert talk by Dr. Prince Kumar, Staff Geotechnical Engineer, Terracon Consultants, Inc. Houston, Texas, USA, on 11th June 2024 on "Resilient Moduli Characterization of Stabilized Soils for Highway/Airport Pavement Design". This talk highlighted the importance of resilient modulus for the mechanistic empirical design of pavements and emphasised the need for stabilising local soils to enhance their resilient modulus. Comparative performance of soils stabilized with cement, lime and synthetic polymer in terms of their performance in highway/airfield pavements is discussed.

IGS Chennai Chapter

The IGS Chennai Chapter organised two in-person invited talks in the April-June 2024 quarter by renowned geotechnical experts. The first talk was on 17th April, by Prof. Elango Lakshmanan, a former Professor at the College of Engineering (CEG), Anna University and presently Visiting Professor, in the Dept. of Civil Engineering, IIT Madras. His talk titled "Geophysical Techniques for Assessing the Integrity of Foundation Strata" presented some of the important geophysical methods and their applications with some interesting case studies. The other talk was on 31st May by Mr. Jonathan Daramalinggam, presently the Engineering Director at Keller Asia Pacific, Singapore. His talk titled "Lessons Learnt: Stone Column Supported Earth Embankments" presented three brief case studies of stone-column-supported embankments in soft soils from Malaysia. He highlighted the challenges faced and the lessons learnt, both at the design and construction stages of those projects.

IGS Indore Chapter

IGS Indore Chapter organised two monthly lectures under "Field Monitoring in Geomechanics" in association with TC-220 of ISSMGE. This initiative works as a curtain raiser for the upcoming International Symposium on Field Monitoring in Geomechanics 2026. On 19th April, the lecture was delivered by Mr. Anirudhan I.V. on

"Monitoring for Performance" attended by around 40 participants. On 21st June, Dr. V. Balakumar, Senior Geotech and Structure Consultant at Simplex Infrastructures Limited delivered lecture on "Application of Observational Study in Research". The session was attended by around 35 participants.

IGS-Indore Chapter launched a monthly lecture series, "GeoHorizons: Geotechnical Innovation and Sustainable Developments". This initiative aims to enrich the knowledge of the society members and students. On June 28, 2024, the lecture series was inaugurated with an incredible lecture by Dr. Nitin Tiwari on "Sustainable Geotechnical Solutions for Resilient Infrastructure in a Rapidly Changing Climate". Dr. Tiwari, a Postdoctoral Researcher at Purdue University and Incoming Assistant Professor at Southern Illinois University Carbondale, delivered a session attended by around 60 participants. His insights provided a golden opportunity for students to explore cutting-edge sustainable solutions in geotechnical engineering, boosting their academic and professional growth.

IGS Jabalpur Chapter

On 21st May 2024, IGS Jabalpur Chapter in association with the Practicing Engineers' Association Jabalpur organized an earthquake awareness program. Dr. Sanjay Verma, Secretary of IGS Jabalpur Chapter explained in detail about the 6.2 M Jabalpur Earthquake that happened on 22nd May 1997 in which 39 people died and about 500 crores monetary loss was recorded. He explained the leading causes, North Narmada Fault (NNF) and South Narmada Fault (SNF) of this earthquake in central India. On this occasion, an earthquake awareness documentary film was shown. In this film all the measures of the earthquake i.e. what is earthquake, how it occurred, what are seismic waves, how the structures can be built as earthquake resistant, importance of soil assessment to build safe buildings, guidelines of the Indian Standards provided by the BIS and necessity of applying the good construction method to make safe structures. IGS members Prof. Vedant Shrivastava, Dr. I.K. Khanna, Dr. Sangita Verma, Er. P.K. Soni, Er. Pradeep Verma, Col. R.P. Shrivastava, and about 80 participants, practicing engineers, students of various engineering colleges, students of TIET student chapter and general public attended the awareness program.

Dr. Rajiv Chandak, Vice Chairman Jabalpur Chapter, delivered a lecture in seminar on 22nd May on "Importance to have Earthquake Proof Structures in Future". Through his effective presentation, Dr. Chandak highlighted the sensitive status of Jabalpur city by citing examples of earthquake incidents around the world. During the earthquake of May 22, 1997, the citizens of Jabalpur experienced immense pain and irreparable loss of life and property. Dr Rajiv Chandak presented technical information on the subject so that in future construction can be made safe from earthquakes. He prominently emphasized on various suggestions including use of Indian Standards, land testing before constructions, quality construction, regular and symmetric shape, use of shear and cross walls etc. for construction of earthquake safe structure. He also mentioned the need for microzonation of Jabalpur. In this seminar various members of Jabalpur Chapter, Er. Manish Dubey, Er. C.M. Ayachi, and more than 70 practicing engineers were present in the seminar. UltraTech Cement Ltd. supported the seminar under corporate social responsibility. Mr Virendra Sharma, Regional Technical Head, Mr. Pradeep Tiwari and Mr. Krashanagini Sing, Tertiary Sales Head and Mr. Sanjeev Sharma, Territory Technical Manager, were present at the earthquake awareness seminar.

A field visit for the students of the IGS-TIET Student Chapter was conducted on 31st May at Lalpur Water Treatment Plant, Gwarighat. The key concept, along with practical knowledge was shared by the Unit In-charge, Mr. Arun Dubey and his team. The students visited two water treatment plants on the Narmada River: one at Lalpur, Gwarighat, with a capacity of 55 MLD, and the Ramnagara WTP at Tilwara Ghat, with a capacity of 120 MLD. Students got an opportunity to see and understand all the processes taking place from the intake well (sources of raw water) to the drinking water supply. Information about the water testing unit was given to all the students by Mr. Dubey. Prof. R.K. Vishwakarma, Prof. Akash Jain, Prof. Satyam Tiwari, Prof. Shivam Tiwari, Prof. Abhishek Patel, Prof. Deepesh Lodhi, Mr. Dharmendra and Mr. Murli coordinated the visit.

IGS Kochi Chapter

The Rendezvous 2.0 Webinar series, which is conducted in commemoration of the 75-year celebrations of IGS, continues even after the concluding function held during IGC 2023 for the benefit of the members of the chapter. The next in the series, 27th Webinar talk was delivered by Dr. Rahul R. Pai, Asst. Professor, Dept. of Civil Engg., SCMS School of Engineering & Technology. The talk was delivered on 8th April 2024 on the topic "Significance of Field Testing of Innovative Materials used in the Base and Sub-base Layers of Flexible Pavement". The session was well attended by the members from Kochi and outside also.

The Executive Committee of Kochi Chapter had a physical meeting on 9th April 2024 commemorating the 15th year of formation of the Kochi Chapter. National President Dr. Anil Joseph was the chief guest. Dr. Babu T. Jose, Founder Chairman and Patron, welcomed the gathering and shared his memories of the chapter's formation. He was also delighted that the IGS National body had awarded the Young Chapter the opportunity to conduct IGC 2011, which was a success. The gathering was attended by family members of the EC members.

IGS Kochi Chapter was glad to associate with SCMS School of Engineering and Technology, Ernakulam in conducting an International Conference on Novelties in Geotechnical Engineering (ICNGE-2024) (Hybrid mode) on 25th & 26th April 2024 at the College campus. Dr. Anitha G. Pillai, NEC Member of IGS was the Organizing Chairman and Dr. Rahul R. Pai, Asst. Professor of SCMS and Member of Kochi Chapter was the Organizing Secretary.

Dr. Anil Joseph, National President of IGS, was the chief guest. The Conference was well attended by researchers, academicians and practicing engineers. There were fruitful deliberations and discussions on the papers presented offline and online during the conference. Experts in geotechnical engineering delivered keynote lectures.

The next technical webinar, 28th in the series was delivered on 6th May 2024 by Er. K.V. Sivannarayana, Assoc. Chief Consultant, Assystem India Ltd., Chennai. Webinar was on the topic "Good practices in Geotechnical Investigation, Field Testing for Viaduct Structures and Foundation Recommendation". The session had good attendance and interaction with the speaker.

The 29th Webinar session was delivered by Dr. Abhay Gupta, Director, Skeleton Consultants Pvt. Ltd., Noida and Er. Ravi Sundaram, Director, CENGRS Geotechnica Pvt. Ltd., Noida. The talk of the session was delivered on the topic "Engineering India's Tallest Bungy Jumping Tower including Geotechnics of its Foundation at Shivpuri, Rishikesh". The webinar was delivered on 10th June 2024. The session covered a highly interesting topic, during which both structural and geotechnical aspects were thoroughly elaborated.

IGS Mumbai Chapter

IGS Mumbai Chapter inaugurated Student Chapter on 5th April 2024 at Thakur Engineering College, Kandiwali, Mumbai.The first webinar was delivered by Mr. Govind Raj, DGM Engineering (North & West) Keller Ground Engineering (I) Pvt. Ltd., Mumbai on 24th May 2024. He delivered a lecture on "Embedded Retention Wall Design – Consequences and Measures". Mr. Govind discussed the analysis, design and construction of earth retention systems in complex ground conditions. The lecture focused on suitability and the effect of the commonly used analysis methods of retention systems clubbed under limit state, subgrade reaction and finite element methods. Throughout the lecture, Mr. Govind provided examples of the influence of various parameters such as drained/undrained analysis, wall flexibility, effects of ground water table, over excavation, effects of surcharge, stiffness etc. on the behaviour of the retaining walls. Overall, Mr. Govind's presentation highlighted the impact of various parameters on the behaviour of retaining walls, categorising them into "less impact" and "high impact" categories.

The second webinar was delivered by A. Ramalingeswara Rao, Associate Vice President, Navi Mumbai International

Airport Pvt. Ltd. on 21st June, 2024. He spoke on "Experiences in Large Rock Fill Embankments for Infrastructure Projects" and presented its reliability and versatility for geotechnical problems. His presentation covered various aspects of rock fill embankments. His presentation also covered the gaps in the existing specifications and need for performance-based specifications. The webinar covered the rock fill works carried in NMIA project. It also covered specialized tests conducted to validate the critical parameters and ways to monitor the settlements. The webinar was concluded with lively Q&A session. The webinars were attended by almost 80 participants from around the globe.

IGS Mysuru Chapter

A one-day program was organized to celebrate World Earth Day on 22nd April, 2024 by IGS Mysuru Chapter in association with the Department of Civil Engineering at Vidyavardhaka College of Engineering Mysuru. The objectives were to create awareness to students and general public about SWATCH ABHIYAN, keeping the mother earth clean. Many members of the IGS Mysuru Chapter and faculty members of Vidyavardhaka College of Engineering took 65 third-year B.Tech students to the industrial area of Mysuru city. The enthusiasm of young changemakers inspired everyone to create a better future. Each year, Earth Day has a specific theme to focus global attention on pressing environmental issues. The theme for Earth Day 2024 was "Planet vs. Plastics", emphasizing the need for collective action to repair and heal the planet's ecosystems, combat climate change, and preserve biodiversity.

The one-day program to celebrate World Environment Day on 5th June, 2024 was organized by IGS Mysuru Chapter in association with the Department of Civil Engineering and IQAC of Vidyavardhaka College of Engineering, ACCE(I) Mysore Centre, Manipal Hospital and Forest Department of Government of Karnataka. During the celebration, three events, namely, Walkathon, planting of saplings and awareness speeches were organized. About 200 students, faculty members and IGS members took part in

Walkathon event in which the members walked for about 3 km displaying placards which created awareness on keeping our environment clean. About 100 saplings of Honge and Mahogani were planted in and around the campus of Vidyavardhaka College of Engineering. Personnel from the Forest Department, Manipal Hospital, Chairman IGS Mysuru Chapter, Principal and faculty members of Vidyavardhaka College of Engineering spoke about the need for maintaining the environment and the importance of engineers, especially civil engineers in implementing sustainability. The entire program was extremely useful and successful, and program created awareness on the clean environment. World Environment Day has been celebrated on 5 June since 1973 worldwide. In 2024, it was hosted by Saudi Arabia with the theme "Land Restoration, Desertification, and Drought Resilience". The focus was on bringing back healthy land, preventing desertification, and managing water shortages. Trees, healthy soil, and clean water were emphasized as imperative for a sustainable planet.

One-day Workshop on “Advances in Geotechnical Engineering (AGE-2024)” was organized by IGS Mysuru Chapter in association with the Department of Civil Engineering at Sri Jayachamarajendra College of Engineering, JSS Science and Technology University Mysuru on 10th June 2024. During the workshop, IGS Student Chapter was inaugurated.

IGS Mysuru Chapter, though very young, has four student chapters, one each at Vidyavardhaka College of Engineering, National Institute of Engineering, Maharaja Institute of Technology and now, at JSS Science and Technology University. While speaking at the inaugural function, Dr. Santosh Kumar, Vice Chancellor at JSS Science and Technology University expressed the need for motivating the students and appreciated this initiation of IGS Mysuru Chapter. Dr. S.K. Prasad, Chairman of Mysuru Chapter suggested the students to organize at least 4 to 5 activities such as field visits to sites of importance, student competitions, guest lectures from experts and bring in awareness on the importance of geotechnical engineering. The inauguration of the IGS Student Chapter brought together IGS members, faculty and students of JSS Science and Technology University with an aim to foster knowledge exchange, enhance practical skills, and promote innovative solution and to the complex challenges faced in geotechnical engineering.

During the technical session, Dr. Sreevalsa Kolathayar gave of NITK

Surathkal gave deep insights on many topics such as sustainable development goals, earth as sustainable construction material, risk resilience, water security and geohazards, geosynthetics through many case studies. The session delivered by Dr. Sowmya, Department of Civil Engineering, VCET Puttur, highlighted the importance of soil investigation which is crucial for the selection and design of foundation type, planning construction techniques, selection of appropriate construction equipment, estimating development cost for the site and study of environmental impacts at the proposed construction site. The concluding lecture was delivered by Dr. S.K. Prasad, Chairman of IGS Mysuru Chapter. He gave valuable information about infrastructure projects in India, urban population and infrastructure, sustainable construction methods, policies of India, sustainable development goals indicating the role of geotechnical engineering. He concluded that understanding soil and its interaction with structure under all conditions is essential.

IGS Pune Chapter

IGS Pune Chapter celebrated its 20th year of establishment under the theme "Empowering Minds, Transforming Futures: 20 Years of Excellence at IGS Pune Chapter" A week-long celebrations was planned at various venues.

A two-day training program was held on April 1st and 2nd 2024 for Garware Technical Fibres Ltd. on Coastal Protection Works. Series of lectures were delivered by experts from this field who were mainly from CWPRS. IGS Pune Chapter would like to thank Er. Tiru Kulkarni and his team for extending their support, and the faculty members for imparting the training that was widely acknowledged. Sessions were delivered by Er. Vilas Joshi, Er. Deepali Kulkarni, Er. Anil Kale and Er. Rutuparna Joshi.

On 3rd April 2024, IGS Pune Chapter celebrated its 20th year of establishment by inaugurating three student chapters simultaneously.

The opening of the 33rd, 34th and 35th Student Chapters at Trinity Academy of Engineering, Trinity College of Engineering and Research, K J College of Engineering and Management Research, was indeed a special occasion with the gracious presence of IGS President Dr. Anil Joseph, IGS Hon. Secretary Dr. A. P. Singh and NEC Member Dr. Manish Dixit.

The faculty coordinators of all three chapters, along with their student bodies, were present at the well-organized oath-taking ceremony.

The celebrations continued toward the evening of 3rd April 2024 with a networking and dinner program. The evening saw the presence of mentors of IGS Pune Chapter, some of whom were founder members and other well-wishers. Professionals from various professional bodies like ICI, ACCE graced the evening.

On 4th April IGS Pune Chapter proudly inaugurated their 36th Student Chapter at MMIT (Maharashtra Mitra Mandal's Institute of Technology, Lohegaon). The chief guest of the event was NEC Member Dr. Manish Dixit, who was also instrumental in initiating the Student Chapter opening at this campus.

On the 5th and 6th of April, IGS Pune Chapter held their most awaited annual event of the year, Geofest 2024 in association with the Civil Engineering Department of PCCOER. This year

the honour of hosting the event was graciously accepted by Pimpri Chinchwad College of Engineering & Research (PCCOER). Chief guest for the day was Er. R.K. Kulkarni. Number of exciting events including games and competitions, namely Geo Model, Geo Quiz, Geo Codes, Jagga Jasoos, Treasure Hunt, Spot Talk was held. More than 190 students from various colleges in and around Pune participated in the competitions. Chief guest for the valedictory function was Er. Jyothi Kulkarni, Chief Engineer PWD.

Kolhapur Institute of Technology's College of Engineering (Autonomous), Department of Civil & Environmental Engineering, in association with IGS Pune under IGS Student Chapter organised a "Symposium on Advancement in Geotechnical Engineering" from 19-23 April, 2024 through online mode. Eminent experts from industry and different institutions

delivered the expert lectures for 5 days. The event saw participation in large numbers, the sessions were interactive and encouraged active audience participation.

On April 26, 2024, the IGS Pune Chapter organized an interaction event. The chapter had the honor of welcoming Er. Mr. Rutuparna Joshi, Director of Technology at Watershed Geo in Atlanta, Georgia. The event was attended by EC members and faculty coordinators of the IGS Pune Chapter and took place at the IEI venue in Pune.

IGS Pune Chapter inaugurated its 37th Student Chapter at BATU, Lonere on 29th April 2024. The chief guest and speaker for the event was Er. Deepali Kulkarni. A lecture was delivered on the most sought and interesting topic "Geotechnical Engineering and Real-Life Challenges in Industry". It was also an attempt to encourage young engineers to remain in civil engineering field and develop interest in geotechnical engineering.

Institution of Engineers of India (IEI), Pune Center, in association with IGS Pune Chapter and Association of Consulting Civil Engineers organised an expert talk on "Rock Anchoring" that was delivered by Er. Siddhartha Kulkarni, Soiltech India Pvt. Ltd. It was an offline event that saw the participation of more than 60 Engineers from various fields of engineering.

A training program was held at PWD office, Navi Mumbai and IGS Pune Chapter was proud to have been part of imparting training to the newly joined PWD Engineers. More than 50 participants were present in the hall and

about 200 participants joined online. The session on "Advanced Geotechnical and Pile testing" was delivered by Er. Siddharth Kulkarni, Executive Director, Soiltech India Pvt. Ltd. on 11th June, 2024. IGS Pune Chapter was thankful to Er. Shri Vikas Ramgude, Chief Engineer Designs for the opportunity provided.

A one-week Short Term Training Program STTP (Online mode) on "Building Sustainable Infrastructure through Emerging Technologies in Civil Engineering" was organised from 10-14 June, 2024 by APCOER, Pune in association with IGS Pune Chapter.

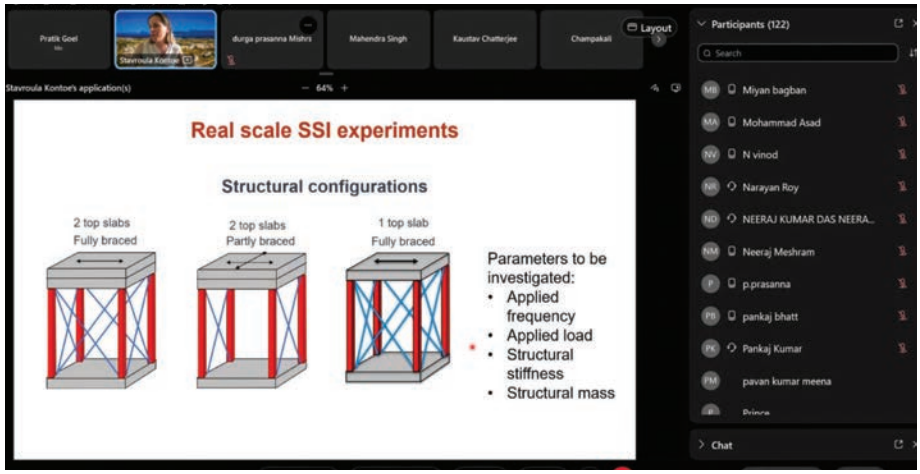
Jaihind College of Engineering IGS Student Chapter in association with IGS Pune Chapter conducted a one-week workshop on "Recent Trends in Geotechnical Engineering". Interesting lectures were delivered by eminent speakers on various topics related to soil stabilisation and foundation engineering. This event was held through online mode from 25-29 June 2024.

The IGS Pune Chapter had the honor of meeting AICTE Chairman Dr. T.G. Sitharam on 3rd July, 2024, at Savitribai Phule Pune University. The members found it inspiring and motivating to listen to Dr. T.G. Sitharam.

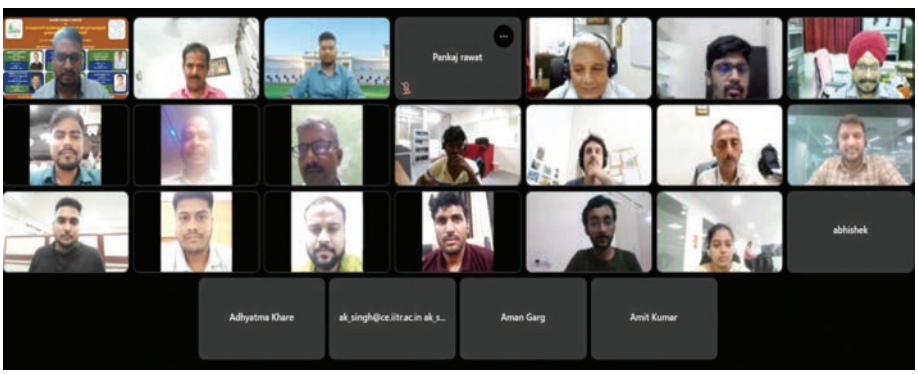
IGS Roorkee Chapter

Indian Geotechnical Society-Student Chapter Roorkee (IGS-SCR), in collaboration with IIT Roorkee and CSIR-CBRI, organized an online technical seminar on April 17th, 2024. The webinar, titled "FEM Analysis of Slope Stability Problems in ABAQUS," featured Dr. Pranjal Mandhaniya, a Post-doctoral Fellow at the Department of Mechanical and Industrial Engineering, NTNU, and a PhD holder from IIT Delhi. Dr. Mandhaniya delivered the lecture focusing on the practical application of ABAQUS software in simulating slope stability issues. The session imparted hands-on experience, demonstrating the utilization of various tools available in ABAQUS for analyzing slope stability.

IGS-SCR announced the launch of its lecture series themed "Engineering the Future: Progressive Practices in Geotechnical Engineering," in collaboration with Department of Civil Engineering, IIT Roorkee. The series began with an online lecture on June 3, 2024, titled "In-Situ Stress Measurements and its Applications for Pumped Storage Projects." Dr. G.V. Ramana, Assistant Professor in Civil Engineering at NIT Warangal, delivered the inaugural lecture, sharing his expertise on hydraulic fracturing in rock mechanics. Dr. Ramana provided a detailed explanation of stress determination techniques essential for designing tunnels in Pumped Storage Plants, highlighting the practical applications of hydrofracturing. His presentation covered the methodologies and principles of accurately measuring in-situ stress, emphasizing their importance in ensuring the structural integrity and efficiency of tunnel designs. Through both theoretical and practical insights, Dr. Ramana demonstrated how precise stress determination impacts the stability and functionality of Pumped Storage Plants, offering attendees a comprehensive understanding of this critical geotechnical engineering component.



IGS-SCR announced the successful organization of the third and fourth lectures in its series “Engineering the Future: Progressive Practices in Geotechnical Engineering” on June 15, 2024. These events, emphasizing continuous learning and collaboration in Geotechnical Engineering, were held in collaboration with the Department of Civil Engineering, IIT Roorkee. The third lecture, presented by Prof. Jonathan Knappett, focused on nature-based solutions for protecting linear infrastructure in upland areas, discussing practical applications and challenges. The fourth lecture, delivered by Prof. Mike Brown, explored recent research on enhancing the design and sustainability of Overhead Line Equipment (OLE) foundations in tension, highlighting methodologies and their importance in maintaining stability and efficiency. Both lectures provided in-depth insights into innovative approaches and their implementation, underscoring the significance of sustainable infrastructure practices.

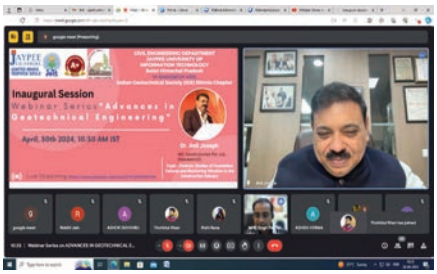


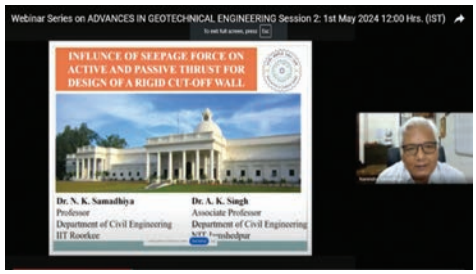
IGS-SCR announced the continuation of its lecture series themed “Engineering the Future: Progressive Practices in Geotechnical Engineering,” made possible through collaboration with Department of Civil Engineering, IIT Roorkee. The series featured an online lecture on June 26, 2024, titled “Computational Modeling of Seismic Soil Structure Interaction Problems,” presented by Prof. Stavroula Kontoe from the University of Patras and Imperial College London. Prof. Kontoe explored seismic soil-structure interaction (SSI) using real-scale experiments and numerical modelling, highlighting practical applications and challenges. She detailed the seismic stability and design of SSI systems for wind turbines, addressing both wind and seismic loads. Her presentation covered methodologies for accurate modelling and analysis of SSI problems, emphasizing their importance in ensuring the structural integrity and efficiency of wind turbine designs, and provided attendees with a comprehensive understanding of the impact of computational modelling on structural stability and functionality in geotechnical engineering.

IGS Shimla Chapter

A one-week online webinar series on Advances in Geotechnical Engineering spanning 30th April to 4th May 2024 has been organized by the IGS Shimla Chapter and Civil Engineering Department, JUIT Waknaghat with the view of educating the civil engineering community, particularly field practitioners and researchers about the modern trends and challenges in the field of geotechnical engineering. The event was inaugurated through the outlook speeches from Dr. Anil Joseph, President-IGS, Dr. A.P. Singh, Secretary-IGS, Prof. (Dr.) N.K. Samadhiya, Ex-President IGS, Dr. Rajendra Kumar Sharma, Vice-Chancellor, JUIT, Dr. Ashok Kumar Gupta, Dean (Academics and Research), JUIT and Chairman, IGS Shimla Chapter and Dr. Ashish Kumar, HOD-CED, JUIT. The secretary of IGS Shimla Chapter, Dr. Niraj Singh Parihar acted as moderator and event host throughout the series.

The event witnessed renowned speakers from both academia and industry with a outstanding participation from faculty, engineers, research scholars and students from various parts of the country who shared their research and field experiences on various burning topics in geotechnical engineering and civil engineering such as forensic studies in foundation failure and construction vibrations, influence of seepage forces, bearing capacity of soil on slopes, slope stability analysis using numerical modeling, landslide hazards in Himalayan region etc. All the events followed with a query session with meaningful discussions between the geotechnical engineering community. The event also witnessed enormous participation from multiple grounds of civil engineering with more than 500 participants. It was suggested by the speakers and engineering community to have similar events over geotechnical challenges and related issues in the coming days as well.





A one-day field trip was organized by Civil Engineering Department and IGS Shimla Chapter on 4th May, 2024 to Sawara Kuddu Hydroelectric Project (Pabbar river), Hatkoti, Shimla in Himachal Pradesh for the students of Civil Engineering with the motive of providing exposure to the renewable and sustainable forms of energy generation and functioning of the hydro-projects. The trip was coordinated by the IGS Shimla members Mr. Kaushal Kumar and Mr. Akash Bharadwaj where various structural, geotechnical and hydrological aspects were discussed with the dam authorities.

IGS Srinagar Chapter

A seminar with the theme "Indian Nuclear Power Program: Evolution, Present and the Way Forward" under the aegis of the Indian Geotechnical Society (IGS) and the Indian Nuclear Society (INS) was conducted at NIT Srinagar on 14th April, 2024. Speakers, including eminent professionals from BARC, NPCIL, DAE, and AERB, provided valuable insights into the operations of nuclear power plants, their evolutionary designs, commissioning and decommissioning, site selection and structural engineering safety, as well as aspects of nuclear materials and applications of rare earth elements. The seminar was convened by Prof. Ravindranath (Director NIT Srinagar), Heads of Civil and Mechanical Engineering Departments, and Prof. B.A. Mir (Honorary Secretary, IGS). Prof. Adnan Qayoom, Dr. Majid Hussain and Dr. Falak Zahoor were the coordinators

who made the event successful with the assistance of post-graduate scholars of the Geotechnical Engineering Division (Civil Department). The seminar attracted more than 40 participants, including under-graduate and post-graduate students from various disciplines of engineering and other sciences.

In their keynote addresses, Prof. Bhat (HOD, Civil Engineering) and Prof. Adnan Qayoom (HOD, Mechanical Engineering) highlighted the significance of the engineering disciplines in the effective development of nuclear power plants. Prof. Ikram Ahmad (HOD, Physics) and Prof. M.A. Shah underlined the importance of various engineering and science disciplines to planning, building, and security. Prof. Ravindranath (Director NIT Srinagar) in his inaugural address, mentioned the tremendous opportunities presented by the event for undergraduate and post-graduate students. He also appreciated the efforts of NIT Srinagar in collaboration with IGS and INS for providing a significant platform for professionals from all disciplines. Prof. B.A. Mir emphasised the role of geotechnical and geological engineering in the selection of proper sites for nuclear power plants as well as the construction of resilient foundations.

IGS Surat Chapter

Indian Geotechnical Society Surat Chapter in association with Sardar Vallabhbhai National Institute of Technology, Surat and GRIMTECH Projects (I) Pvt. Ltd. organised a two day national symposium on Recent Advances in Geotechnical Engineering (RAGE – 2024) on 7th and 8th June, 2024. This event took place at the Avadh Utopia Club, Surat. The two days symposium was made possible due to the support by the 29 sponsors. The organisers curated lectures with aim to bridge the gap between theory and practice covering the various branches of geotechnical engineering as Geotechnical & Geophysical Investigation, Shallow & Deep Foundations, Earth Retaining Structures, Geosynthetics & Reinforced Soil Structures, Forensic Geotechnical Engineering, Soil Dynamics & Geotechnical Earthquake Engineering, Ground Improvement Techniques, Physical & Numerical Modelling, Geoenvironmental Engineering, Rock Mechanics, Tunnelling & Underground Structures, Slope Stability & Landslides, Transportation Geotechnics, Uncertainties, Risk & Reliability in Geotechnical Engineering, Soil Structure Interaction, AI/ML Application in Geotechnical Engineering, Site Investigation & Exploration. The symposium was inaugurated in the presence of Prof. C.H. Solanki (Organiser), Prof. G.J. Joshi (Inc. Head of the Department – DoCE), Dr. Anil Joseph (IGS President), Dr. A.P. Singh (IGS – Honorary Secretary, Mr. Sanjiv Agarwal (Managing Director – GRIMTECH Projects (I) Pvt. Ltd.) and Prof. C.D. Modhera (Inc. Director – SVNIT, Surat). The entire program consisted of 19 lectures delivered by delegates from various eminent universities and industries along with 3 corporate presentations. Er. Hitesh Desai, former chairman IGS Surat Chapter was felicitated by Prof. C.H. Solanki during the event for his invaluable service in the field of geotechnical engineering. The symposium was attended by 225 participants including PG students, researchers, and industrialists, thus making the event a grand success. The event concluded with the valedictory function chaired by Prof. C.H. Solanki, expressing his heartfelt gratitude and thank you note being delivered by Dr. Jitesh. T. Chavda.

IGS Thiruvananthapuram Chapter

IGS Thiruvananthapuram Chapter organized a one-day workshop on "Spatial Prediction of Soil Parameters using Geospatial AI/ML" at Marian Engineering College. Dr. Aswathy S., Professor in Computer Science and Engineering, provided an insightful presentation on AI applications in Civil Engineering. Prof. Radhakrishnan T., Digital University Kerala, presented on the spatial prediction of soil parameters

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Dr. V.V.S. RAO

Founder & Chairman

using geostatistical and machine learning techniques. He also conducted a live demonstration, showcasing practical applications of these techniques. Dr. Sunil S.P., former Joint Director of the State Forensic Science Lab in Trivandrum and current Director of Operations at Alibi Global Pvt. Ltd., discussed the latest advancements in digital forensics. Dr. N. Unnikrishnan, Chairman of the IGS Trivandrum Chapter, shared his extensive experiences in forensic geotechnical engineering, offering valuable insights into the challenges and solutions in this specialized field.

IGS Thiruvananthapuram Chapter organized a National Conference, "Advancing Sustainability in Civil Engineering Practices–2024 (ASCP'24)", on 12th April 2024 at St. Thomas Engineering College, with a robust participation of more than 120

participants from various engineering colleges across the state. ASCP'24 served as a platform to present papers and insights aimed at fostering sustainable development in the realm of civil engineering. Dr. K. Balan, Professor/ Consultant in Geotechnical Engineering and Vice Principal, Rajadhani Institute of Engineering & Technology, Trivandrum and Dr. Jayamohan J., Principal, LBS Institute of Technology for Women, Trivandrum were the keynote speakers. In the plenary session, the speakers elucidated the importance of adopting holistic approaches and embracing technological innovations to mitigate environmental impacts and enhance the longevity of civil engineering projects. The conference witnessed the presentation of 33 external papers and 31 internal papers, each offering unique perspectives and solutions to the pressing challenges faced by the industry.

MEMBERS' NEWS

Prof. Deepankar Choudhury (LF-0509)

Prof. Deepankar Choudhury of Civil Engg. Department of IIT Bombay has been honoured with the prestigious Fellowship (FASc) of Indian Academy of Sciences (IASc), Bangalore. The certificate was given during the 35th Mid-year meeting of Bangalore Science Academy held during 28-29 June at IISc Bangalore.

IGC - 2025

IGC-2025
would be hosted by

IGS-Jalandhar Chapter

The venue, theme, scheduled dates etc. are being worked out and shall be announced soon.

ISSMGE BULLETIN

Vol. 18, Issue 2, June 2024

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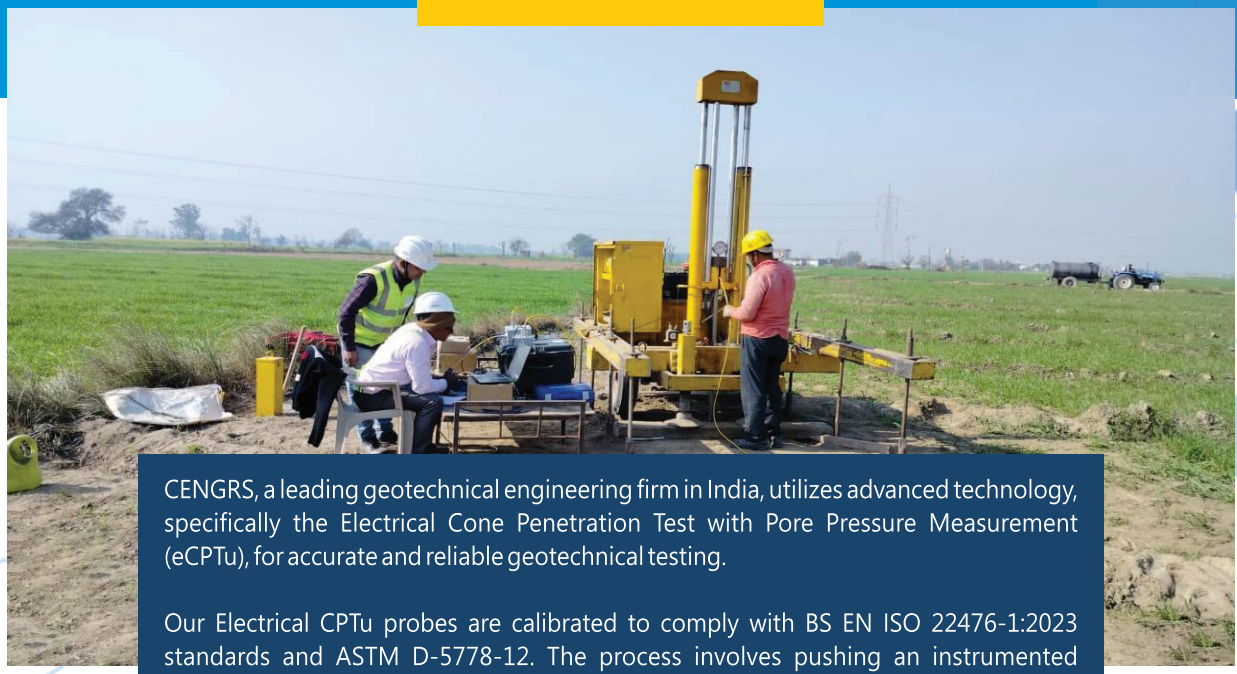
CENGRS GEOTECHNICA PVT. LTD.

Soil and Foundation Experts



CENGRS, a leading geotechnical engineering firm in India, utilizes advanced technology, specifically the Electrical Cone Penetration Test with Pore Pressure Measurement (eCPTu), for accurate and reliable geotechnical testing.

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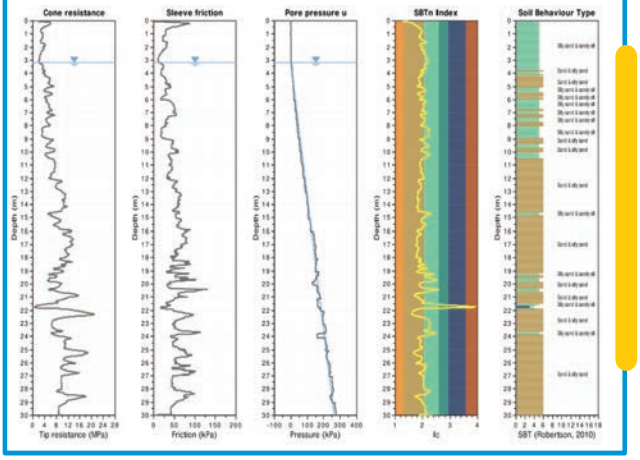
This test may be used to interpret various soil properties for foundation design and liquefaction analysis.

We are committed to delivering high-quality services and have recently acquired three CPT rigs to expand our testing capabilities.

CPT Data Presentation



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Organized by

INDIAN GEOTECHNICAL SOCIETY

7th – 10th October, 2025

Venue

Taj Cidade de Goa Horizon, Goa

Website: www.geotechasia.org

Email : info@geotechasia.org

Invitation

It is with great pleasure that we extend a warm invitation to the **1st Geotech Asia International Conference (Geotech Asia)** that will take place in **Goa, from October 7th to 10th, 2025**.

About 1st Geotech Asia 2025 & Asian Regional Conferences

Every four years, the Asian Regional Conferences are held following a bidding and voting process among member nations. The 17th Asian Regional Conference, hosted by the Kazakhstan Geotechnical Society, took place from August 14th to 18th, 2023, at the Hilton Astana Hotel in Nur-Sultan, Kazakhstan. Under the theme "Smart Geotechnics for Smart Societies," the conference drew over 600 attendees, including scientists and experts from 90 countries, notably influential figures from leading construction hubs in Asia such as Japan, South Korea, China, Singapore, Turkey, and India. With 26 countries in the Asian Region and the ARC happening only once every four years, many countries miss out on the chance to host the conference. In light of this, a new series called Geotech Asia, to be held once every four years between the Asian Regional Conferences, was proposed. During the 17th ARC, the idea for Geotech Asia was introduced, and India was chosen to host the inaugural event in 2025 and 18th Asian Regional Conference (18ARC) is scheduled to be held at Thailand in 2027. The Indian Geotechnical Society, which hosted the first Asian Regional Conference in 1960, will also organize the first Geotech Asia Conference. Scheduled for October 7th to 10th, 2025, in Goa, the conference's organizing committee is inviting researchers, academics, and practising engineers to submit papers for presentation. As the first event in the series, India anticipates a significant turnout from member nations and their representatives.

Conference Sub-Themes

- Computational Geotechnics
- Data and Software for Geotechnical Engineering
- Deep Foundations
- Earth Retaining Structures
- Education - Embankments, Dams, and Slopes
- Earthquake Engineering and Soil Dynamics
- Engineering Geology and Site Characterization
- Geoenvironmental Engineering
- Geophysical Engineering
- Geosynthetics
- Geotechnics of Soil Erosion
- Pavements
- Risk Assessment and Management
- Rock Mechanics
- Shallow Foundations

Key Dates

Last date for AsRTC/TC meeting Proposal	30.10.2024
Abstract submission open	01.06.2024
Abstract submission deadline	30.08.2024
Abstract acceptance notification	30.09.2024
Full paper submission deadline	20.02.2025
Full paper acceptance notification	20.04.2025
Final full paper submission	30.06.2025
Geotech Asia Conference	07th - 10th October 2025

Registration Fees For Various Categories

Category	Early Bird (Upto 07.05.2025)	Regular (Upto 23.08.2025)	Onsite
	INR	INR	INR
IGS/ ISSMGE (Members)	40,000	45,000	49,000
Non IGS/ISSMGE Members	42,500	47,500	51,500
Student Participant	21,000	23,000	25,500
Accompanying guests	17,000	20,000	21,000

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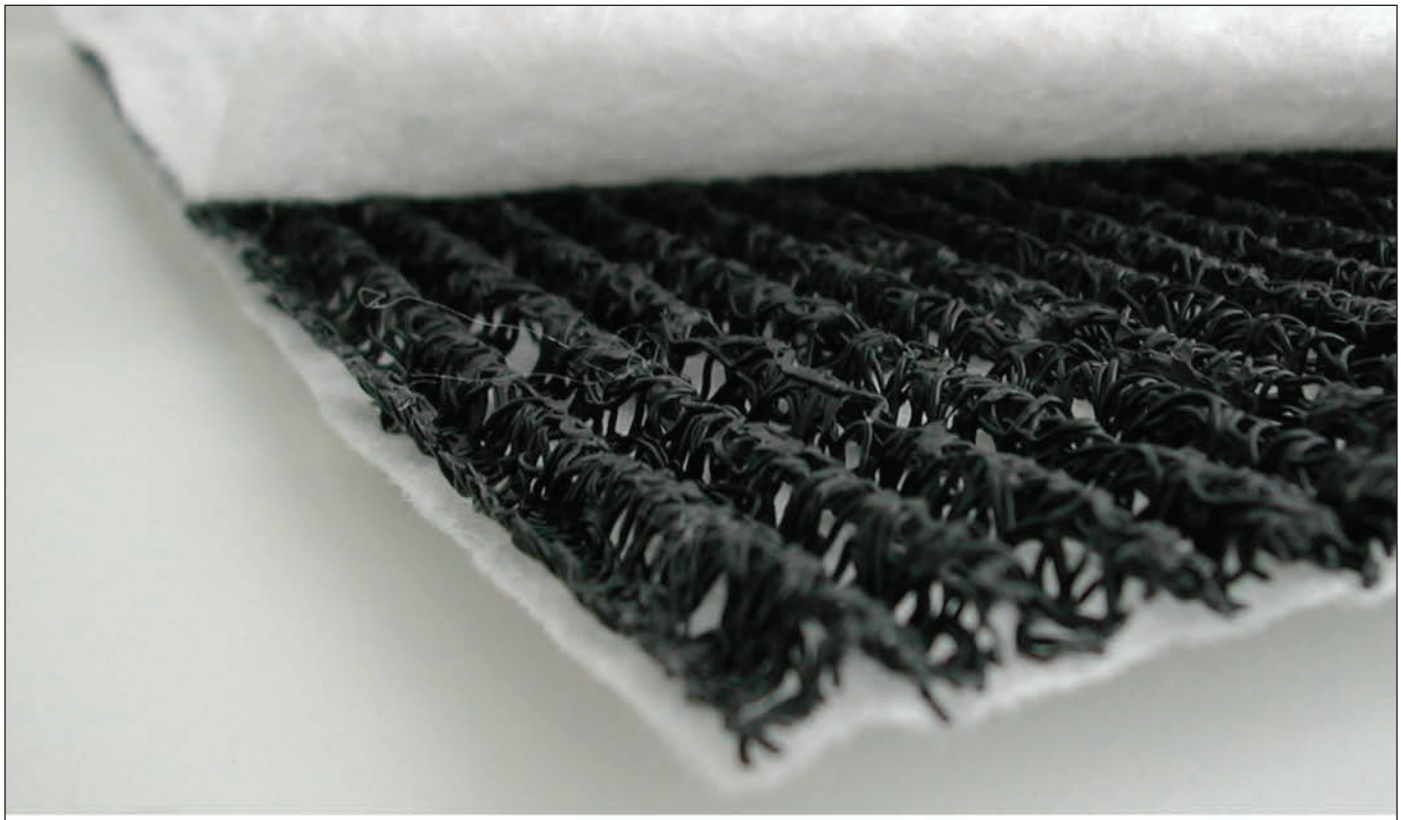

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INDIAN GEOTECHNICAL SOCIETY AURANGABAD CHAPTER

19th - 21st December, 2024 | Website: www.igc2024mit.com

Venue:

MIT Campus, Chhatrapati Sambhajinagar (Aurangabad), Maharashtra, India

Jointly Organized by :

Indian Geotechnical Society, Aurangabad Chapter

Civil Engineering Department, MIT, Chhatrapati Sambhajinagar, Aurangabad, Maharashtra

Invitation

Indian Geotechnical Society, Aurangabad Chapter and Civil Engineering Department, MIT, Chhatrapati Sambhajinagar, Aurangabad extends you a warm invitation to the IGC-2024 to be held at MIT Aurangabad.

Conference Themes

The main theme of the conference is 'Geotechnical Engineering for a Sustainable Tomorrow' (GEST 2024).

Conference Sub-Themes

- Geotechnical and Geophysical Investigation
- Foundations — Shallow & Deep
- Earth Retaining Structures
- Geosynthetics and Reinforced Soil Structures
- Forensic Geotechnical Engineering
- Soil Dynamics and Geotechnical Earthquake Engineering
- Ground Improvement Techniques
- Physical and Numerical Modelling
- Rock Mechanics, Tunnelling and Underground Structures
- Geo-Environmental Engineering
- Slope Stability and Landslides
- Transportation Geotechnics
- Uncertainties, Risk and Reliability in Geotechnical Engineering
- Soil Structure Interaction
- AI/ML Application in Geotechnical Engineering
- Geomaterial Characterization, Site Investigation and Exploration.

Key Dates

Date of Abstract Submission	30.04.2024
Intimation of Abstract Acceptance	15.06.2024
Last date for Full Paper Submission	20.08.2024
Intimation of Paper Acceptance	20.09.2024
Submission of Camera Ready Paper	05.10.2024
Last date for Registration of Accepted Papers	05.10.2024

Sponsorship Details

Category	Sponsorship Amount	Free Delegates	Stall Size	Presentation
Title Sponsor	Contact Conference Secretary		3x3m	15 min
Platinum	Rs. 10,00,000/-	06	3x3m	10 min
Diamond	Rs.7,00,000/-	05	3x3m	7 min
Gold	Rs.4,00,000/-	04	3x3m	5 min
Silver	Rs.2,00,000/-	03	3x3m	3 min
Bronze	Rs.1,00,000/-	02	3x3m	Nil
Well Wisher	Rs.25,000/-	1	-	-

Registration Fees For Various Categories

Delegate Category		Up to 31st Oct 2024	After 31st Oct 2024
IGS Member		INR 6500	INR 7000
Non-IGS Member		INR 7000	INR 8000
Foreign Delegates	IGS Member	USD 400	USD 450
	Non IGS Member	USD 450	USD 500
SAARC Country delegates		INR 7500	INR 8500
Senior		INR 2500	INR 3000
Accompanying person		INR 2000	INR 2500
PG Students/ Research Scholars		INR 3000	INR 3500

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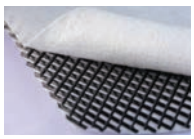
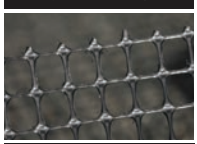
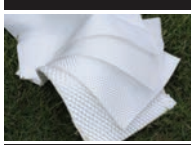
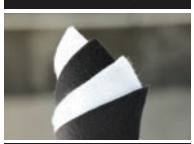
TechCell
Geocell


TechDrain
Drainage Composite


TechGrid
PP Biaxial Geogrid


TechFab
Woven Geotextile


TechGeo Non-
woven Geotextile

46/47, Maker Chambers VI, Nariman Point, Mumbai - 400021
+91 - 22 - 2287 6224 / 25
info@techfabindia.com

INDIAN GEOTECHNICAL JOURNAL

Volume 54, Issue 3, June 2024

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Cyclic Static Triaxial

Cyclic Shearbox

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GTRS

KSR GEOTECHNICAL TESTING AND RESEARCH SOLUTIONS PRIVATE LIMITED

BRIEF INTRODUCTION ABOUT GTRS

GTRS (Geotechnical Solutions) is an end-to-end geotechnical service provider founded by a group of Geotechnical Experts led by Prof. K.S. Rao .The company specializes in comprehensive geotechnical solutions, including laboratory testing of soil and rock, geophysical, geological and geotechnical field investigations, kinematic analysis and numerical modelling . The group expertise extends to foundation design, slope stability, ground improvement, tunneling, and underground structures.

VISION

To attain excellence and be a leader in the field of Civil engineering and deliver of high-quality value-added services in Geotechnical / Tunnel engineering to meet the societal needs

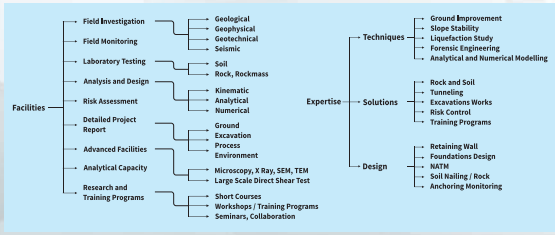
MISSION

To provide reliable and value-driven geotechnical, geophysical, and seismological services to clients through affordable analytical testing

OUR POLICY

GTRS is committed to maintain impartiality and confidentiality and perform tests with accuracy and deliver test results

GTRS also offers short courses and training programs in the relevant area of specialization



Laboratory Address : Plot Number 1276, Sector-38, Phase-1, HSIIDC, Industrial Eatate, Rai, Sonepat, Haryana-131029
Mobile: +91 9254988200, E-mail: contact@ksrgeotech.com

12TH INTERNATIONAL SYMPOSIUM ON FIELD MONITORING IN GEOMECHANICS (ISFMG 2026)

6th – 10th August, 2026

Supported by

INDIAN GEOTECHNICAL SOCIETY

Venue

Indian Institute of Technology Indore,
Madhya Pradesh

Website: www.isfmg2026.com

Email : convener@isfmg2026.com
neelima.satyam@iiti.ac.in
neelima.satyam@gmail.com

Invitation

It is with great pleasure that we extend a warm invitation to the 12th International Symposium on Field Monitoring in Geomechanics **(ISFMG 2026)** that will take place in **Indore**, from **August 6th to 10th, 2026**.

Symposium Theme

The main theme of the symposium is "Advances in Field Monitoring for Geomechanics".

Symposium Sub-Themes

- Tunnels and Underground Spaces
- Bridges and Transport Infrastructure
- Dams and Embankments
- Slopes and Earthworks
- Buildings and Foundations
- Mining and Landfill
- Environmental Monitoring
- The Observational Methods
- Specifications and Standards
- Excavation and Retaining Structure
- Inverse Modelling
- Advanced Design Technology

Key Dates

Tentative dates of the Symposium	06 -10 Aug 2026
Paper Submission start	To be Announced later
Abstract submission deadline	To be Announced later
Full paper submission Deadline	To be Announced later
Review Notification	To be Announced later
Camera Ready submission	To be Announced later

Registration Fees

Registration Type	By 24.11.2025	After 24.11.2025	Onsite 24.02.2026
	$	$	$
Standard Registration	600	700	900
Student Registration	300	350	500
SAARC Country Delegates	500	600	800
SAARC Country Students	250	300	400

Address for Correspondence :-

Prof. Neelima Satyam
Symposium Convener
Department of Civil Engineering,
Indian Institute of Technology Indore
+91-9440488034 (Mobile)
convener@isfmg2026.com
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IGS ELECTION-2024 SCHEDULE

Sr. No.	Item	Date, Time
1	Notification of Election, Call for Nominations and Nomination form: on IGS Website	Friday, 02 August, 2024
2	Last date for Receipt of Nomination Papers along with candidate's Bio-data at e-mail: admin@igs.org.in through candidate's e-mail ID. (Candidates must provide E-mail ID and Mobile number in Nomination Form)	Friday, 30 August, 2024 4.00 pm
3	Scrutiny of Nominations	Monday, 02 September, 2024
4	Intimation to the Candidates of accepted nominations by e-mail	Tuesday, 03 September, 2024
5	Withdrawal of Candidature: by e-mail at admin@igs.org.in (IGS Secretariat will verify by phone call to the candidate the authenticity of the withdrawal)	Tuesday, 10 September, 2024 4.00 pm
6	Uploading Bio-data of Contesting Candidates on IGS Website	Monday, 16 September, 2024
7	Uploading Ballot Papers on IGS Website	Monday, 16 September, 2024
8	Electronic voting starts	Thursday, 19 September, 2024 11.00 am
9	Electronic voting ends	Friday, 18 October, 2024 4.00 pm
10	Counting of votes	Monday, 21 October, 2024 12.30 pm
11	Announcement of Results	21 October, 2024 on IGS Website 22 October 2024 by e-mail Oct-Dec 2024 issue of IGS News

GEOTECHNICAL EVENTS CALENDAR

ABROAD

2024

August 26-30
Lisbon (Portugal)

XVIII European Conference on Soil Mechanics and Geotechnical Engineering (ECSMGE 2024).

For Details:
Email : spg@lnec.pt

October 6-9
Algiers

18th African Regional Conference on Soil Mechanics and Geotechnical Engineering in Algiers. The theme of the Conference is Geotechnical Engineering for Africa's Sustainable Development.

For Details:
Website: https://18arc.algeos-dz.com/
Email: info18arc@algeos-dz.com & info18arc@gmail.com

October 30-31
Oslo, Norway

1st International Rock Mass Classification Conference (RMCC) organized by the Norwegian Geotechnical Institute.

For Details:
E-mail: office.rmcc2024@ngi.no
Website : www.rmcc2024.com

November 18-20
Sydney, Australia

5th International Conference on Transportation Geotechnics, Ground Improvement and Evolving Technologies for Sustainable Transport Infrastructure.

For Details:
Website : https://ictg2024-c10000.eorganiser.com.au/

2026

September
Athens, Greece

4th International Symposium on Geotechnical Engineering for the Preservation of Monuments and Historic Sites organized by the Technical Committee 301 of the ISSMGE.

For Details:
Email: secretary@tc301-athens.com

INDIA

2024

September 22-27
New Delhi

International Society for Rock Mechanics and Rock Engineering (India) is hosting the prestigious ISRM International Symposium and the 13th Asian Rock Mechanics Symposium.

For Details:
Website : arms2024.org
Email: contact@isrmindia.org

December 19-21
MIT, Aurangabad

Indian Geotechnical Conference (IGC-2024) on 'Geotechnical Engineering for a Sustainable Tomorrow (GEST 2024)' organized by Indian Geotechnical Society, Aurangabad Chapter & Civil Engineering Department, MIT, Aurangabad.

For More Details Visit:
Website : www.igc2024mit.com

Address for Correspondence:
Organizing Secretary,
Indian Geotechnical Conference, IGC-2024
Department of Civil Engineering, MIT
Chh. Sambhajinagar (Aurangabad) - 431010
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Welcome to New Members

The Executive Committee of IGS extends hearty welcome to the following members who have been admitted to the Society recently/ elevated to Fellowship.

LIFE FELLOWS

LAXMIKANT YADU	LF-0665
ASHWINI VIKAS CHAVAN	LF-0666
SANDEEP KUMAR SHETTY	LF-0667
RAJ MOHAN SINGH	LF-0668
SHALINEE SHUKLA	LF-0669

LIFE MEMBERS

SAQIB KHURSHEED WANI	LM-5736
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KHUSHBOO VISHWAKARMA	LM-5787
ANANTA SAHA	LM-5788
BILL KHANDAI	LM-5789

STUDENT MEMBERS

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SHARAD DADHICH	SM-0365
NANDURI SESHA SAI PAVAN KALYAN	SM-0366
SHIVSHANKAR MAURYA	SM-0367
AMAN SRIVASTAVA	SM-0368
VISHAL SANTOSH VISHWAKARMA	SM-0369

IGS-FERROCO TERZAGHI ORATION 2024

Prof. Giulia MB Viggiani

The prestigious IGS Ferroco Terzaghi Oration (IFTO) the ninth in the series is scheduled on 5th October 2024 at IIT-Hyderabad to be organized by IGS-Hyderabad Chapter.

The ninth Oration shall be delivered by the eminent Prof. Giulia MB Viggiani, U.K.

This earlier eight IGS-Ferroco Terzaghi Orations were delivered by Prof. Harry G. Poulos (2008), Prof. M.R. Madhav (2010), Prof. Kerry Rowe (2012), Prof. A. Sridharan (2004), Prof. William Van Impe (2016), Prof. T. Ramamurthy (2018), Prof. Jean Louis Briaud (2020) and Prof. K.S. Rao (2022) alternatively by an eminent foreign and an eminent Indian Geotechnical Engineer.

Editor : Dr. A.P. Singh, Hon. Secretary, IGS & Director, Explore Engineering Consultants Pvt. Ltd., C-273, Sector 63, Noida, Uttar Pradesh 201301

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