

Perm National Research Polytechnic University
**Russian Society for Soil Mechanics, Geotechnics and
Foundation Engineering**
Russian Academy of Architecture and Construction Sciences
Siberian Geotechnical Association
Ministry of Education and Science of the Perm Territory



PROGRAM OF THE CONFERENCE

II All-Russian Conference with International Participation
« Deep foundations and geotechnical problems of territories»



26 - 28 may 2021
Perm

DEAR COLLEAGUES!

We invite you to take part in the
II All-Russian Conference with International Participation
«Deep foundations and geotechnical problems of territories»,
Which will take place in *Perm National Research Polytechnic*
University 26 - 28 May 2021
Conference website: <http://dfg2021.pstu.ru/en/>

CONFERENCE TOPICS

1. Laboratory and field soil tests.
2. The practice of the development of underground space, geotechnical monitoring.
3. Foundation construction and soil base reinforcement technologies.
4. Educational and methodical issues of training geotechnical specialists.
5. Geosynthetics in Geotechnics.
6. Experimental and theoretical studies of foundations and underground structures.
7. Highways and engineering structures designing problems.

CONFERENCE ORGANIZING COMMITTEE

- Anatoly Tashkinov. Doctor of Physical and Mathematical sciences professor. Rector of PNRPU.
- Vyacheslav Ilyichev. Doctor of technical science, professor. Head of RSSMGFE. Vice head of RAASN.
- Andrey Ponomarev. Doctor of technical science, professor. Head of the CPG Department, PNRPU.

- Leonid Nuzhdin. PhD. Professor. Chairman of the Association of Siberian Geotechnics.
- Igor Bartolomey. PhD., acting head Department of ADM PNRPU.
- Grishina A.S., Art. Lecturer, PNRPU;
- Svetlana Sazonova. Art. Lecturer, PNRPU.

PROGRAM OF THE CONFERENCE

Tuesday 25 May 2021.

Arrival and accommodation of conference participants in hotels in Perm

Wednesday 26 May 2021.

9⁰⁰ -10⁰⁰ – Registration of conference participants (foyer of the 2nd floor of the main building of PNRPU, Komsomolsky prospect, 29)

10⁰⁰-10³⁰ – Conference opening (PNRPU Academic Council Hall, 4th floor, room 423a).

10³⁰-13³⁰ – Plenary speeches by invited lecturers (Hall of the Academic Council, 4th floor, room 423a).

13³⁰-14³⁰ – Lunch break

14³⁰- 16⁰⁰ – Section of online reports (Conference hall of the Scientific Council of PNRPU, 4th floor, room 423a)

14³⁰- 16⁰⁰ – Section "The practice of the development of underground space, geotechnical monitoring " (Conference hall of the PNRPU dissertation council, 3rd floor, room 345)

16⁰⁰-16³⁰ – Coffee break (ground floor, PNRPU reception hall)

16³⁰- 18³⁰ – Section " Experimental and theoretical studies of foundations and underground structures" (Conference hall of the scientific council of PNRPU, 4th floor, room 423a)

16³⁰- 18³⁰ – Section " Highways and engineering structures designing problems " (Conference hall of the dissertation council PNRPU, 3rd floor, room 345)

19⁰⁰ – Banquet in honor of the opening of the conference (ground floor, PNRPU reception hall)

Thursday 27 May 2021.

10⁰⁰-11³⁰ – Plenary speeches by invited lecturers (Hall of the Academic Council, 4th floor, room 423a).

11³⁰-12⁰⁰ – Coffee break (ground floor, PNRPU reception hall)

12⁰⁰-13³⁰ – Plenary speeches by invited lecturers (Hall of the Academic Council, 4th floor, room 423a).

13³⁰-14³⁰ – Lunch break

14³⁰- 16⁰⁰ – Section "Experimental and theoretical studies of foundations and underground structures"
(Hall of the Academic Council, 4th floor, room 423a)

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16³⁰- 18³⁰ – Section "Experimental and theoretical studies of foundations and underground structures"
(Hall of the Academic Council, 4th floor, room 423a)

16³⁰- 18³⁰ – Section "Laboratory and field testing of soils" (Conference room of the PNRPU dissertation council, 3rd floor, room 345)

Friday 28 May 2021.

10⁰⁰-11⁰⁰ – Summing up the results of the conference (Conference Hall of the Scientific Council of PNRPU, 4th floor, room 423a).

11⁰⁰-22⁰⁰ – Excursion program. Meeting the participants of the excursion on the porch of the main building of PNRPU

Wednesday 26 May 2021.

9⁰⁰ -10⁰⁰ – Registration of conference participants (foyer of the 2nd floor of the main building of PNRPU, Komsomolsky prospect, 29).

10⁰⁰-10³⁰ – Conference opening (PNRPU Academic Council Hall, 4th floor, room 423a).

➤ **Andrey Ponomarev** – Co-chairman of the Organizing Committee of the Conference, Professor, Doctor of Technical Sciences.

Welcome speeches:

➤ **Anatoly Tashkinov** – Chairman of the Conference Organizing Committee, Rector of PNRPU, Professor, Doctor of Physical and Mathematical Sciences;

➤ **Vyacheslav Ilyichev.** – Doctor of technical science, professor. Head of RSSMGFE. Vice head of RAASN.

➤ **Mario Manassero**, PhD, professor, Politecnico di Torino, Vice President of ISSMGE for Europe (Torino, Italy);

➤ **Dmitry Samoilov**, - Deputy Chairman of the Government of the Perm;

➤ *representatives of partners and sponsors of the conference*

10³⁰-13³⁰ – **Plenary speeches by invited lecturers (Conference Hall of the Scientific Council of PNRPU, 4th floor, room 423a).**

Section link:* <https://bigbluebutton.pstu.ru/b/dns-d5s-buu-lxv>

1. Pile Load Tests at the deepest foundation piles in Germany. Rolf Katzenbach, Dr.-Ing., professor Technical University (TU) of Darmstadt (Darmstadt, Germany);

2. Advantages of Instrumentation of Piles to be Subjected to Pile Loading Test and Practical Solutions. Erol Guler, Ph.D., M.S., B.S, professor, Bogazici University, Head of Turkish Geosynthetics Society (Istanbul, Turkey);

3. Numerical analysis and Geomonitoring of Behaviour of Foundation of Abu-Dhabi Plaza in Nur-Sultan. Askar Zhushupbekov, DSc, Professor, President of Kazakhstan Geotechnical Society (Astana, Kazakhstan);

4. Settlement and bearing capacity of foundations of finite width. Z. G. Ter-Martirosian, DSc, Professor, Moscow State University of Civil Engineering, (Moscow, Russia);

5. Foundations of unique buildings and structures built in St. Petersburg over the past 5 years. P.A. Mangushev R.A., Doctor of Technical Sciences, Professor, SPbGASU, (Saint Petersburg, Russia).

13³⁰-14³⁰ – Lunch break

Section of online reports (Conference hall of the Scientific Council of PNRPU, 4th floor, room 423a)

Section link: <https://bigbluebutton.pstu.ru/b/dns-d5s-buu-lxv>

1. BIM Geotechnics. **G.G. Boldyrev**
2. Determination of the additional load on the pile of the foundation of the bridge support during the formation of karst deformations. **A.G. Evdokimov**
3. Study of the behavior of horizontally loaded pyramidal piles with broadening and their calculation. **S.A. Krutyaev.**
4. Influence of the enclosing structure of a “wall-in-the-ground” pit of a trench type on the roll of a high-rise building on a slab foundation. **A.Ganbold.**
5. 3D numerical model of a stone column in clay soil. **D.A. Sayed.**
6. Method for determining the bearing capacity of a two-layer base. **M.V. Shokhirev.**
7. Assessment of the influence of cyclic freezing-thawing on soil water permeability: new laboratory instruments and results. **A.A. Korshunov.**
8. Monitoring and protection of the structural safety of unique underground sewage facilities operated for a long time in difficult soil conditions in the interests of sustainable development of the geotechnical infrastructure of the metropolis. (experience of St. Petersburg). **N. A. Perminov.**
9. Temperature and Strain State of a Small-Scale Model of a Single Pile with a Seasonally Operated Cooling Device. **A.N. Kraev, E.A. Zhaisambaev.**

14³⁰- 16⁰⁰ – **Section "The practice of the development of underground space, geotechnical monitoring "** (Conference hall of the PNRPU dissertation council, 3rd floor, room 345)

1. Results of geotechnical monitoring of the construction of 22-storey residential buildings on combined strip pile foundations with pressure testing of the soil base. **M.A. Stepanov.**

2. Features of design and construction on soft clay soils in conditions of high seismic hazard on the example of the Olympic facilities in Sochi.

O. A. Mozgacheva.

3. Methodology for assessing the causes of flooding of the basement of a civil building. *G.G. Solonov.*

4. Geotechnical support during the construction of urban and transport infrastructure. *V.E. Rusanov.*

5. Determination of the actual search factor based on geodetic monitoring data. *A.S. Almakaeva.*

16⁰⁰-16³⁰ – Coffee break (ground floor, PNRPU reception hall)

16³⁰-18³⁰ – Section "Experimental and theoretical studies of foundations and underground structures" (Hall of the Academic Council, 4th floor, room 423a)

1. Experience in determining the parameters of an elastic-viscoplastic soil model. *A.Z. Ter-Martirosyan.*

2. The shape of the elastic core and areas of plastic deformation in the base under the pressed stamp. *A.N. Bogomolov.*

3. Assessment of the bearing capacity of a drill pile for the construction of a high-rise building with a developed underground space. *V.V. Konyushkov.*

4. Determination of the permissible value of internal uniform pressure on the contour of an underground horizontal mine with a trapezoidal shape of its cross-section. *A.N. Ushakov.*

5. Method for calculating the settlement of ring pile foundations of reservoirs on clayey soils. *O. A. Schmidt.*

6. Analysis of the horizontal displacement of piles caused by excavation of foundation pits. *D.S. Kolesnik.*

7. Peculiarities of calculating the settlement of foundations during construction on soft soils in the conditions of the Imereti lowland. *Y. Kalugina.*

16³⁰-18³⁰ – Section "Highways and engineering structures designing problems " (Conference hall of the dissertation council PNRPU, 3rd floor, room 345).

1. Geophysical monitoring of hazardous landslide processes on the roads of the Krasnodar Territory. **V.S. Macius.**

2. Assessment of the operational reliability of retaining walls in the framework of diagnostics of the technical condition of highways in the Adyghe Republic. **M.A. Pshidatok.**

3. Comparative analysis of methods for calculating seismic impact and their influence on the coefficient of stability of hydraulic structures. **L.Yu. Ermoshina.**

4. Calculation of crack resistance of fiber-reinforced concrete lining of transport tunnels, erected by a mining method in rocky soils. **K.E. Minin.**

5. Project of a toll collection point in the Perm Territory. **V.I. Bryzgalov.**

6. Experience in testing the effectiveness of the use of bentonite mats and geomembranes at the test site. **S.A. Bykovskaya.**

19⁰⁰ – Banquet in honor of the opening of the conference (ground floor, PNRPU reception hall)

Thursday 27 May 2021

10⁰⁰-11³⁰ – Plenary speeches by invited lecturers (Conference Hall of the Scientific Council of PNRPU, 4th floor, room 423a).

Section link: <https://bigbluebutton.pstu.ru/b/dns-d5s-buu-lxv>

1. History and practical performance of IN SITU TESTS for ground improvement applications. Serge Varaksin, professor, scientific advisor “Apageo”, Head of Technical Committee T212 ISSMGE (France).

2. Geotechnical engineering and alternative aggregates, tailings. Ivan Vaníček, DSc. “EN”, professor, Czech Technical University in Prague, (Prague, Czech);

3. Settlement and bearing capacity of pile foundations. Mait Mets, PhD, professor, University of Life Sciences Institute of Forestry and Rural Engineering, (Tartu, Estonia).

11³⁰-12⁰⁰ – Coffee break (ground floor, PNRPU reception hall)

12⁰⁰-13³⁰ – Plenary speeches by invited lecturers (Hall of the Academic Council, 4th floor, room 423a). **Section link:** <https://bigbluebutton.pstu.ru/b/dns-d5s-buu-lxv>

1. The role of chemico-osmosis in the performance assessment of bentonite-based barriers for contaminant containment. **Andrea Dominijanni**, PhD, professor, Politecnico di Torino (Torino, Italy);

2. Application of substitute building materials in geogrid reinforced soil structures and other civil engineering constructions. **Sven Schwerdt**, Dr.-Ing., professor, Magdeburg-Stendal University of Applied Sciences, (Magdeburg, Germany);

3. Geotechnical monitoring of the bearing capacity of bored foundations of bridges during degradation of the permafrost base. **Sergey Kudryavtsev**, DSc, Professor, Far Eastern State Transport University (Khabarovsk, Russia).

13³⁰-14³⁰ – Lunch break

14³⁰-16⁰⁰ – Section "Experimental and theoretical studies of foundations and underground structures" (Hall of the Academic Council, 4th floor, room 423a)

1. Features of the calculation of large-sized bored piles for vertical load. **A.L. Gotman**.

2. Work of bored piles in rocky and hard clayey soils. **O. A. Shulyatiev**.

3. Bearing capacity of drill piles made with the use of polymer drilling mud. **V.S. Lesnitsky**.

4. Assessment of the effect of vibration immersion and vibration extraction of sheet piles on additional settlements of neighboring buildings in water-saturated silty-clayey and silty-sandy soils. **V.M. Polunin**.

5. Regulation of the geometric position of slab foundations by changing the properties of the soil base. **M.D. Kaigorodov**.

6. Influence of deformations from the territory undermining on the SSS of building structures. **E.G. Skibin**.

7. Designation of the design resistances of the foundations of slab foundations. **Yu.O. Matvienko**.

14³⁰- 16⁰⁰ – Section "Foundation construction and soil base reinforcement technologies " (Conference hall of the PNRPU dissertation council, 3rd floor, room 345)

1. Ensuring the reliability of the weak base of the foundation slab of a 12-storey residential building using the latching method. **F.E. Volkov.**

2. On the question of the strength of soil cement. Destruction of myths. **I.A. Salmin.**

3. Determination of the bearing capacity of bored piles based on the results of static sounding. **I. S. Salnyi.**

4. Nonlinear work of the subgrade when calculating the settlement of piles with broadening. **M. V. Glukhova.**

5. The results of experimental studies of strengthening the strip foundation model using a bored injection pile with a broadened heel. **A. A. Paronko.**

6. Numerical analysis and practical application of methods for reinforcing foundations with piles in conditions of building reconstruction. **A. A. Petukhov.**

7. Numerical determination of ground areas to correct the roll of a building. **R. V. Melnikov.**

8. The main reasons for strengthening the foundations, strengthening the soils of the foundations of the buildings in use. **V. A. Demchenko.**

9. Substantiation of the method for determining the parameter of the design soil resistance of the foundation for the foundations of reconstructed buildings. **T. N. Gutnik.**

16⁰⁰-16³⁰ – Coffee break (ground floor, PNRPU reception hall)

16³⁰-18⁰⁰ – Section "Experimental and theoretical studies of foundations and underground structures" (Conference hall of the scientific council of PNRPU, 4th floor, room 423a)

1. Peculiarities of deformation of clay soil under conditions of triaxial compression under block regime cyclic loading, taking into account the formation of micro and macrocracks. **I. T. Mirsaiapov.**

2. The impact of global warming in the design of foundations on permafrost soils. **A. V. Riazanov.**

3. Impact of degradation of permafrost on the bearing capacity of piles. **A. V. Konnov, N. S. Nikiforova.**

4. Genetically nonlinear combined model of a pile field under dynamic impacts. **V. S. Mikhailov, L. V. Nuzhdin.**

5. Composite materials in construction. **O. S. Fedianin.**

6. Estimation of load-set behavior of driven concrete piles using artificial neural network and cone penetration test. **I.V. Ofrikhter.**

16³⁰- 18³⁰ – Section "Laboratory and field testing of soils" (Conference room of the PNRPU dissertation council, 3rd floor, room 345)

1. Measurement of dynamic stresses in soil. **S. I. Evtushenko.**
2. Risks of using artificial sandy foundations in difficult engineering and geological conditions. **D. V. Rachkov.**
3. Development of a small-sized mobile unit for static soil testing with piles and stamps. **A. A. Matiukov, M. A. Samokhvalov.**
4. Evaluation of the bearing capacity of piles according to the data of static sounding and testing of full-scale piles with a static indentation load. **N. IU. Stoliarova.**
5. Changes in the characteristics of silty-clayey soils from natural and climatic influences during the development of deep pits. **E. P. Bragar.**
6. Non-destructive method for preliminary assessment of the deformation modulus of dispersed soils. **V. V. Antipov.**

Poster Presentations (May 26-27, 2021)

The stands are located in the foyer of the 2nd floor of the PNRPU main building.

1. Improving the physical and mechanical properties of soils using fly ash in retaining walls of highways. **K. R. Istomina.**
2. Investigation of the nature of work of piles with rotary anchors for pipeline foundations when working in an array of heaving soils. **O. V. Kostina.**
3. Reinforcement of the subgrade with solid injection devices. **M. L. Nuzhdin.**
4. Investigation of the properties of sand fortified with dimethylpolysiloxane. **A. A. Mamaeva.**
5. Calculation of the settlement of the foundation base, composed of anisotropic soils, using the design scheme of a linearly deformable half-space by the method of layer-by-layer summation. **K. V. Pavliuk, L V Nuzhdin.**
6. Investigation of the possibility of reinforcing pile foundations by contour reinforcement of the soil foundation with rigid vertical elements. **L. V. Nuzhdin, A. A. Zagainov.**

7. Field and laboratory tests of soils using the controlled movement method. **L. V. Nuzhdin, A. A. Kozlova.**

8. Vibrations of heavily loaded pile foundations. **A. V. Lesin, L. V. Nuzhdin.**

9. Field studies of the possibility of performing dynamic processes in cramped urban conditions. **L.V. Nuzhdin, K.S. Tarasov, A.A. Zagainov.**

10. A program for calculating and calculating geotechnical problems. **A. Z. KHasanov, Z. A. KHasanov.**

11. Foundations with a sand damper on an artificial base, reinforced with vertical reinforcement elements. **A. Z. KHasanov, Z. A. KHasanov, B. I. Kurbanov.**

12. Experimental studies of the stress-strain state of the soil around the borehole at axisymmetric pressure from a sand pressometer. **A. Z. KHasanov, N. A. Nabieva.**