

报告专家一: Professor Anvar Chanyshev(俄罗斯工程院西伯利亚分院 N. A. Chinakal 矿业研究所教授、首席研究员)

报告专家二: Professor Ilgizar Abdulin(俄罗斯工程院西伯利亚分院 N. A. Chinakal 矿业研究所教授)

报告时间: 2025年6月30日-7月11日,工作日上午8:30-11:40

报告题目: 详见公开课安排表

报告地点: 深地工程智能建造与健康运维全国重点实验室 303 会议室 邀请人: 马占国(教授/博导)、翟翠霞(教授/博导)

报告专家一简介:



Prof. Anvar Chanyshev, D.Sc., is a leading authority in geomechanics, permafrost engineering, and intelligent monitoring of underground structures. As a Professor at N. A. Chinakal Institute of Mining Siberian Branch Russian Academy of Sciences, he specializes in developing cutting-edge solutions for geotechnical

challenges in extreme environments. His pioneering work includes AI-driven risk assessment systems for Arctic mines, advanced fiber-optic sensing technologies for subzero conditions, and Russia's first Smart Mine standards for deep coal extraction.

With over 120 publications, including the influential monograph Geomechanics of Frozen Rocks (Springer, 2021), Prof. Chanyshev has significantly advanced the field of polar engineering. He serves on the Steering Committee of the International Society for Rock Mechanics (ISRM) Arctic Working Group and has delivered keynote speeches at prestigious forums such as the MSG Forum Moscow and the World Tunnel Congress 2023. In recognition of his innovations in infrastructure monitoring, he was awarded the Russian Federation Prize in Science and Technology (2022).

报告专家二简介:



Professor Ilgizar Abdulin is a distinguished Russian scholar and leading expert in mining economics, sustainable resource development, and digital transformation in extractive industries. Currently affiliated with N. A. Chinakal Institute of Mining Siberian Branch Russian Academy of Sciences. With a

career spanning over 25 years, he has contributed extensively to both academia and industrial practice across Russia and Central Asia. A prolific author, his publications include the seminal work "Determination of lower critical loads in the problem of stability loss of cylindrical mining working beyond elasticity" (2024). This paper investigated that stability loss results in such processes as soil heave, distortion of the roof profile, expulsion of the developed material into the mined-out space. The mathematical model of stability loss is based on the Leibenzon-Ishlinsky method, which considers this process as adjacent to the basic process of rock mass deformation. Also the Shenly hypothesis is applied, suggesting continuous loading at the moment of contour stability loss. The problem is solved within the framework of plastic flow theory and the theory of plasticity.

中国矿业大学力学与土木工程学院 深地工程智能建造与健康运维全国重点实验室 江苏省应用力学中心 2025 年 6 月 27 日

公开课安排表			
日期	时间	主讲人	报告题目
6/30 周一	8:30-10:00	Anvar	Structural models of deformed media (rod, block models); Block model of a deformable solid, main attributes
	10:10-11:40	Abdulin	Description of a block model of a medium using periodic trigonometric functions
7/1 周二	8:30-10:00	Anvar	Block model of a rock with determination of passport characteristics (tensor basis, proper tensor basis); Examples of constructing passport dependencies for different rocks
	10:10-11:40	Abdulin	Resistance of the medium to deformation; Elastic resistance, plastic, resistance in case of rock failure; Soft and hard loading modes
7/2 周三	8:30-10:00	Anvar	Determination of natural stresses acting in a rock mass; Existing reserve, development paths; Experimental studies during stretching of sheet rubber
	10:10-11:40	Abdulin	Experimental studies of finding natural stresses on rocks; Technical solutions
7/3 周四	8:30-10:00	Anvar	Determining the stress-strain state of a rock mass around mine working with an arbitrary cross-section shape; Solving the problem of elasticity theory in the general case as applied to a cylindrical mine working
	10:10-11:40	Abdulin	Determining the elastic-plastic state of a rock mass around a cylindrical working with specified displacement on its boundary
7/4 周五	8:30-10:00	Anvar	Determining tangential displacements on the contour of a mine working based on measured distances between specified points
	10:10-11:40	Abdulin	Investigating the extreme deformation of a rock mass in the case of plane deformation (characteristics of a system of differential equations and their relationships
7/7 周一	8:30-10:00	Anvar	New formulations for solving boundary value problems of rock mechanics in the case of statics and dynamics
	10:10-11:40	Abdulin	Cauchy problem for equations of mathematical physics
7/8 周二	8:30-10:00	Anvar	The Cauchy problem in cases of plane deformation and plane stress state; Solving a problem for a half-plane with Cauchy conditions on the boundary
	10:10-11:40	Abdulin	Solution of the Cauchy problem for a half-plane in the case of an anisotropic body
7/9 周三	8:30-10:00	Anvar	Simple and complex loadings of deformable media beyond the elastic limit; Methods of describing the stress-strain state
	10:10-11:40	Abdulin	The problem of loss of stability of cylindrical workings beyond the elastic limit; Determination of the lower critical loads
7/10 周四	8:30-10:00	Anvar	The problem of the loss of stability of cylindrical pillars beyond the elastic limit; Determination of the lower critical loads
	10:10-11:40	Abdulin	Zonal disintegration of rocks around mine workings, methods of description
7/11 周五	8:30-10:00	Anvar	The circles of Pestilence; Determination of the positive direction of action of tangential stresses on an arbitrary site
	10:10-11:40	Abdulin	Oblique insertion of a tool in the form of a rigid wedge into a rock mass in the case of an isotropic and initially anisotropic material