

团队简介 Team Profile

人工地层冻结理论与应用研究团队



人工地层冻结法是含水、松散、软弱地层中复杂困难地下工程的最可靠的施工方法之一，是深厚表土和含水岩层中最主要的凿井方法，也是隧道、基坑等工程中困难部位首选的施工方法。

该团队现有研究成员 15 人，其中教授 6 人，副教授 4 人，讲师 5 人。近 10 年来，团队完成国家自然科学基金重点项目、国家科技支撑计划项目、国家技术创新项目、国家重点研发计划、企业委托等 150 余项科研项目，科研经费上亿元；获国家科学技术进步

奖二等奖 1 次，省部级科技进步奖特等奖 1 次，一等奖 7 次，二等奖 10 次，三等奖 4 次。

针对制约我国深厚表土层和含水岩层下固体资源开发的建井技术瓶颈，以及城市地下工程中坚难部位的安全施工难题，团队主要研究方向与内容为：深厚表土层和含水岩层中冻结法凿井理论与技术，城市地下工程冻结法施工理论与技术。

团队预期研究目标为：在 600m~800m 特厚表土层中冻结法凿井关键技术，孔隙与裂隙含水岩层中超大直径（ $\Phi 8\text{m}-\Phi 12\text{m}$ ）深立井（600m~1500m）冻结法凿井理论与关键技术，400m~800m 大斜长斜井冻结法凿井理论与关键技术等方面取得突破。

Research Team of the Theory and Application of Artificial Ground Freezing

Artificial ground freezing is one of the most reliable methods used in the construction of complex and challenging underground projects in which the grounds are often water-rich, loose and soft. It is also the most preferred method in projects such as the construction of tunnel and foundation ditch etc.

The team currently consists of 15 researchers, including 6 professors, 4 associate professors and 5 lecturers. In the last ten years, this team has undertaken more than 150 research projects, such as the key project of the National Natural Science Foundation of China, the National Science and Technology Support Program, the National Tech-innovation Project, the National Key Research and Development Program of China and projects entrusted by enterprises, and thus obtained research fund about hundreds of millions of yuan.

In addition, the team has also been awarded the second prize of the National Award for Progress in Science and Technology, the grand prize, first prize (7 times), second prize (10 times), third prize (4 times) of the Award for Progress in Science and Technology of provincial and ministry level.

Targeting at the shaft building bottleneck that restricts the development of the solid resources under the deep alluvium and aquifer, and the safe construction problems on the challenging part of the urban underground engineering, the team mainly focus on making breakthroughs in fields such as the theory and technology of the freeze sinking in deep alluvium and aquifer and the theory and technology of the urban underground engineering using the freezing method.

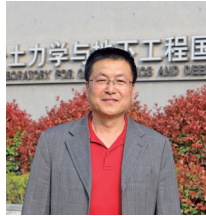
The team is expected to make progress in fields including the key freeze shaft sinking technology in extra deep alluvium of 600m~800m, the theory and key technology of using freeze shaft sinking technology in deep shaft (600~1500 m) with extra-large diameter ($\Phi 8\text{m}-\Phi 12\text{m}$) in pore and fractured aquifer, and the theory and technology of freeze shaft sinking in highly deviated and long inclined shaft of 400m~800m.

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Research Team of the Theory and Application of Artificial Ground Freezing



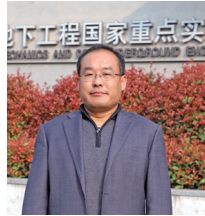
杨维好 教授



岳丰田 教授



黄家会 教授



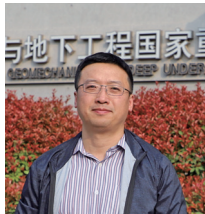
王衍森 研究员



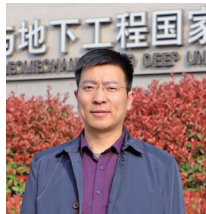
宋雷 研究员



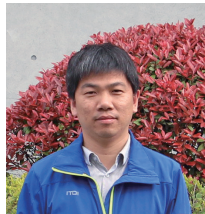
崔振东 教授



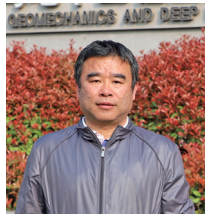
李海鹏 副教授



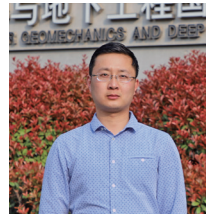
石荣剑 副教授



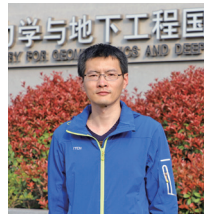
韩涛 副教授



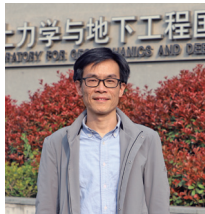
张勇 副教授



张驰 讲师



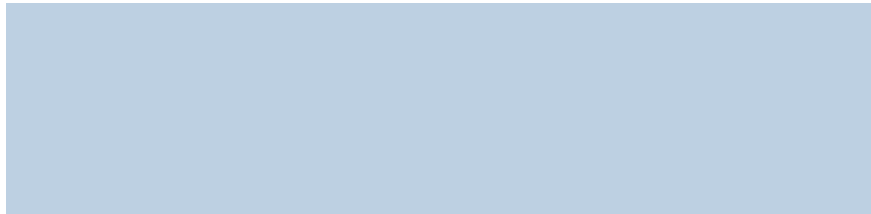
陆路 讲师



杨志江 讲师



张涛 讲师



团队最新研究进展及应用方向：

Latest Research Progress and Application Direction of the Team:

- 600m~800m 特厚表土中冻结法凿井理论与关键技术
Theory and technology of key freeze shaft sinking in extra deep alluvium of 600 m~800 m
- 深井复杂多变地层高效支护关键技术
Key technology of high-efficient supporting scheme for the complex and varied stratum in deep well
- 深厚含水岩层中新型单层冻结井壁关键技术
Key technology of new monolayer freezing shaft lining in deep water-rich bed rock
- 基岩冻结凿井冻结孔泥浆置换充填防突水关键技术
Key technology on water inrush prevention through drilling mud replacing technology for freezing hole with slow setting cement slurry in freezing sinking in rock strata