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陈宗基讲座：岩石流变力学及其工程应用研究的若干进展

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摘要 讨论岩石流变力学及其工程应用研究近年来的若干进展，主要内容包括：对岩石工程流变学问题的综述性介绍、软岩和节理裂隙发育岩体的流变试验研究、流变模型辨识与参数估计、流变力学手段在收敛约束法及隧道结构设计优化中的应用、高地应力隧洞围岩非线性流变及其对洞室衬护的力学效应，以及岩石流变损伤与断裂研究。此外，还对土力学与土工流变方面的一些进展作了简要介绍，并就今后岩土工程流变研究的展望阐述了一点认识。

关键词 岩石力学；流变特性；试验研究；黏弹塑性；非线性；隧洞围岩－支护系统；流变损伤与断裂；土体流变

分类号

ROCK RHEOLOGICAL MECHANICS AND ITS ADVANCE IN ENGINEERING APPLICATIONS

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Abstract

The recent development in some aspects on the research of rock rheology and its engineering applications are discussed；the main contents are listed as follows：a comprehensive introduction of the rock engineering rheology problems，laboratory as well as in-situ study on the soft rock and rock mass of rich growth with joints and fissures，identification of rheological models and their parameters estimation，applications of rheological mechanics to the convergence-confinement method and its applications to the design optimization of tunnel structures，nonlinear rheological behavior of tunnel surrounding rocks in high earth stress region and its mechanical effect of tunnel lining-support，study on rock rheological damage and fracture mechanics. Besides，this paper gives a brief discussion on the rheology problem in soil mechanics and soil engineering. Finally，several understandings on the research work are presented in prospect of the rheological mechanics in geotechnical engineering in the future.

Key words rock mechanics；rheological behavior；test study；viscous elastoplasticity；nonlinearity；lining support system for tunnel surrounding rocks；rheological damage and fracture；rheology in soft soils

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