

卸荷应力路径下棒状结构体试件破损过程的试验研究

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摘要 通过棒状结构体在不同排列方式下的平面应变压缩试验, 研究了侧向应力卸载状态下结构体的破损过程, 探讨了结构性岩土材料在卸荷状态下的变形和破损过程。试验发现, 在侧向应力卸载过程中, 棒状结构体不仅会滑移、转动, 还会发生结构体的破碎; 结构体的破损方式主要有局部剪切破坏和劈裂两种; 结构体试样逐渐破损, 宏观上出现应变硬化或应变软化现象, 最后形成宏观的破损带; 试件的总体积是收缩的, 侧向变形则由收缩逐渐转化为膨胀。

关键词 [岩土力学](#); [卸荷状态](#); [棒状结构体](#); [平面应变压缩试验](#); [破损过程](#); [破损带](#)

分类号

EXPERIMENTAL STUDY ON BREAKING PROCESS OF BAR-LIKE STRUCTURAL BODIES UNDER UNLOADING CONDITIONS

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Abstract

In order to explain the failure and breakage mechanisms of structural geological materials, the plane strain compression tests of the samples of bar-like structural bodies assembled in two patterns are conducted under unloading situations. In the process of reducing the lateral stress, it is found experimentally that the structural bodies not only slide and rotate, but also can be broken and the main failure modes of structural bodies are shear failure and splitting; while the samples assembling of bar-like structural bodies are broken gradually, the strain hardening or strain softening can be observed and breakage bands are macroscopically formed in the end; the volumetric strain of the samples is always contractive but the lateral strain turns to be the laterally extensive gradually.

Key words [rock and soil mechanics](#); [unloading conditions](#); [bar-like structural bodies](#); [plane strain compression tests](#); [breaking process](#); [breakage bands](#)

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