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基于ANSYS平台复杂地质体FLAC3D模型的自动生成

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摘要 由于FLAC3D软件建模难度大，提出了一种快速建模方法，即以ANSYS有限元程序完成的复杂地质体建模、网格划分为基础，采用Visual Basic语言编写了FLAC3D-ANSYS接口程序，实现了FLAC3D软件建模的直观、快速和自动化。通过新疆下坂地水库坝址区和北京地铁四号线车站三维建模实例检验了该方法的有效性和可行性。该方法是运用不同程序优点解决复杂工程地质问题的典型范例。

关键词 数值分析；接口程序；复杂地质体；自动生成

分类号

AUTOMATIC MODEL GENERATION OF COMPLEX GEOLOGIC BODY WITH FLAC3D BASED ON ANSYS PLATFORM

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Abstract

For some complex geologic bodies，numerical models with FLAC3D are difficult to construct. While finite element programs，such as ANSYS，can easily fulfill since it has perfect pre-processors such as entity modeling，Boolean operation of geometric body，and free mesh. In this paper，a procedure is proposed to build numerical model of FLAC3D by using ANSYS，and the interface program of FLAC3D-ANSYS is compiled with visual basic language since there are some differences between the element data conducted by the two programs. So the automatic model generation of complex geologic body can be conducted as follows：the construction of numerical model by ANSYS，the transferring of element data and calling FLAC3D. Then three-dimensional numerical models of a dam and a subway are developed and the case study shows that the intuition，fastness，and automation of modeling，can be realized. The procedure gives an example to build complicated engineering geological model with the advantages of different programs.

Key words numerical analysis；interface program；complex geologic body；automatic generation

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