

图书基本信息

书名：<<波浪和海床交互作用的多孔介质理论>>

13位ISBN编号：9787313090065

10位ISBN编号：7313090064

出版时间：2013-1

出版时间：上海交通大学出版社

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## <<波浪和海床相互作用的多孔介质 >>

### 内容概要

《波浪和海床相互作用的多孔介质理论(英文版)》主要针对海洋岩土工程领域中核心问题，波浪—海床相互作用现象及其相关工程，进行一系列详尽的理论介绍及其相应的工程应用，主要内容包括相关研究最新进展及未来具挑战性的问题、波浪及海床相互作用问题的理论阐述以及海洋结构物附近的流固土耦合过程。

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## 章节摘录

版权页：插图： Thomas' model [43, 44]: Using two-nodal elements, only an isotropic seabed with uniform permeability and Young's modulus subject two-dimensional waves was considered in the mathematical derivation of his first paper [43]. In his second papers [44], the model verification includes the comparison between his model and the previous analytical solutions for a seabed of infinite thickness [30, 51]. Both single and two-layered seabed are considered. It is noted that the soil response in Gibson soil was mentioned in his paper [44]. However, Thomas [44] only directly modified the analytical solution for a saturated semi-infinite seabed for a semi-infinite Gibson soil by  $G' = dG/dz$ , without modifying the original governing equations. As presented in later section, variable modulus will result in few extra items in the governing equations. Thus, treating the soil response in Gibson soil by simply modifying  $G$  to  $G' = dG/dz$  may not be a rigorous way. Furthermore, Thomas' model didn't include the influences of either variable soil characteristics (such as permeability and Young's modulus) or cross-anisotropic soil behavior, which is one of the main concerns in this study. Jeng's model [15, 21, 24, 26]: A series of closed form analytical solutions have been developed by the first author for the wave-induced seabed response in the vicinity of a vertical wall. In his models, both isotropic and cross-anisotropic seabeds have been considered with infinite and finite thickness, as well as a layered medium. The influence of variable permeability in an isotropic seabed has also been discussed [24, 26].

编辑推荐

《波浪和海床相互作用的多孔介质理论(英文版)》作者针对核心理论作详尽阐述，并将其以适合工业界应用的形式展示，不仅为学术界科研人员提供理论基础，同时也为工程界提供有效的设计参考准则。

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