

<<自激振动>>

图书基本信息

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## <<自激振动>>

### 内容概要

本书试图揭示一切自激振动共同的形成机制，同时建立分析研究它的统一程序，从而形成这门横向分支学科的理论体系。

全书共分11章，全面论述自激振动及其系统的本质特征；介绍分析研究自激振动数学模型应用的各种数学方法；介绍工程中典型的和重要的自激振动——从建立数学模型开始，通过分析研究，揭示其成因和影响因素，并指出有效的控制方法；通过归纳分析许多具体自激振动现象的实践经验，总结出自激振动现象的共同的成因机制和统一的建模分析程序。

本书可作为力学教师和相关专业研究生的教学和科研参考书，也可作为各类工程(如航天航空、军工、机械、车辆、化工、土建)技术人员的研究参考书。

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## 章节摘录

版权页：插图：To demonstrate the conversion between forced vibration and self-excited vibration, let us consider a simple example here. It is known that the vortex resonance is an important technical problem. When a fluid flow crosses a cylindrical structure, the wake behind the structure is no longer regular but distinct vortices of the pattern shown in Fig.1. will be found in it. The vortices are alternately clockwise and anticlockwise. They are shed from the cylinder in a perfect regular manner, and are associated with an alternating side-wise force. The vortex shedding on alternate sides of the cylinder causes a harmonically varying force on the cylinder in a direction perpendicular to that of the stream. The vortices come off with a natural frequency. This phenomenon has been studied experimentally and it has been found that the frequency has a definite relation with both the diameter of the cylinder and the velocity of the stream.

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### 编辑推荐

《自激振动:理论、范例及研究方法(英文图书)》 : Based on a systematic understanding of its theoretical foundations, Self-Excited Vibration Theory, Paradigms, and Research Methods of fersa method for analyzing any type of self-excited vibration ( SEV ) .After summarizing the research results of various SEV phenomenon, including chatter, shimmy, rotor whirl, flutter, gallop, and SEV of man-made control systems, the author constructs a general constitutive mechanism of SEV, as well as a common research program and detailed analysis technique. All of these will help the reader independently analyze any new SEV phenomena.

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