

<<流体动力学稳定性>>

图书基本信息

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内容概要

《流体动力学稳定性

第2版》是一部全面流体动力学稳定性的专著。

首先详细介绍了这个领域的三大主题：流体稳定性、热对流、旋转和弯曲流和平行切变流；接着讲述平行切变流的数学理论、大量的线性理论应用、分层理论和不稳定性。

《流体动力学稳定性

第2版》尽可能多地囊括涉及到的试验和数值理论，重点强调用到的物理方法和技巧以及书中得到的结果。

本书的最大特点是包括了大量的习题，这些习题不仅能够很好的掌握书中的内容，而且也是书中一些疑难知识的更具体解答。

目次：导论；热力不稳定性；离心不稳定性；平行切变流；一致渐进逼近；更多有关线性稳定理论；非线性稳定性；附录：广义airy函数。

《流体动力学稳定性 第2版》读者对象：物理、力学专业的研究生、教师和相关科研人员。

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章节摘录

版权页：插图： An important limitation of Landau's theory is due to the assumption that the interaction of only one mode and its harmonics need be considered. This assumption is plausible if the eigenfunctions of the linearized problem are discrete and simple, so that when the flow is slightly unstable only one normal mode is unstable and all the others decay. When the flow is in an unbounded domain, however, the eigenfunctions depend continuously on a real wavenumber. Then a wavepacket of modes is unstable when the flow is slightly unstable. This in fact occurs for most of the cases we have treated. For example, Fig. 2.2(a) shows that, when a fluid at rest between infinite horizontal planes is heated from below and the Rayleigh number R is slightly supercritical, there is a small band of unstable waves, say $a_1(R)$

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