

LECTURE 2

IDENTIFICATION OF VARIOUS FLUTTER REGIMES
AND DISCUSSION OF DYNAMIC STALL

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INTRODUCTION

In this lecture we shall try to identify several of the specific flutter problems that are of concern to the turbomachinery designer. Following a general historical account of the early attempts to cope with various flutter problems relevant to turbomachines, a detailed survey of single degree of freedom torsional stall flutter will be given. Although the phenomenon is experienced by all rotating blade systems, only isolated airfoil studies relevant to helicopters and propellers have been extensive enough to produce a truly predictive design system. However, this prediction relies heavily on empiricism, as will be shown below.