

Introduction

In this session we examine the important topic of **resonance**. Pure resonance occurs when an undamped system is forced at the same frequency as (one of) its natural frequencies. In this case the amplitude of the response grows without bound.

An undamped system is an idealized case which can be considered as the limit of very light damping. In the lightly damped case the amplitude of the response is finite but it can be large. In this case we refer to the biggest possible amplitude as practical resonance.

One common example of practical resonance is a children's swing. If you push it in time with its natural frequency the amplitude of the swing will increase. Another example is a pair of guitar strings tuned to the same note. If you pluck one of them then the vibrating air will push the other one at its natural frequency and it too will start to vibrate.

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