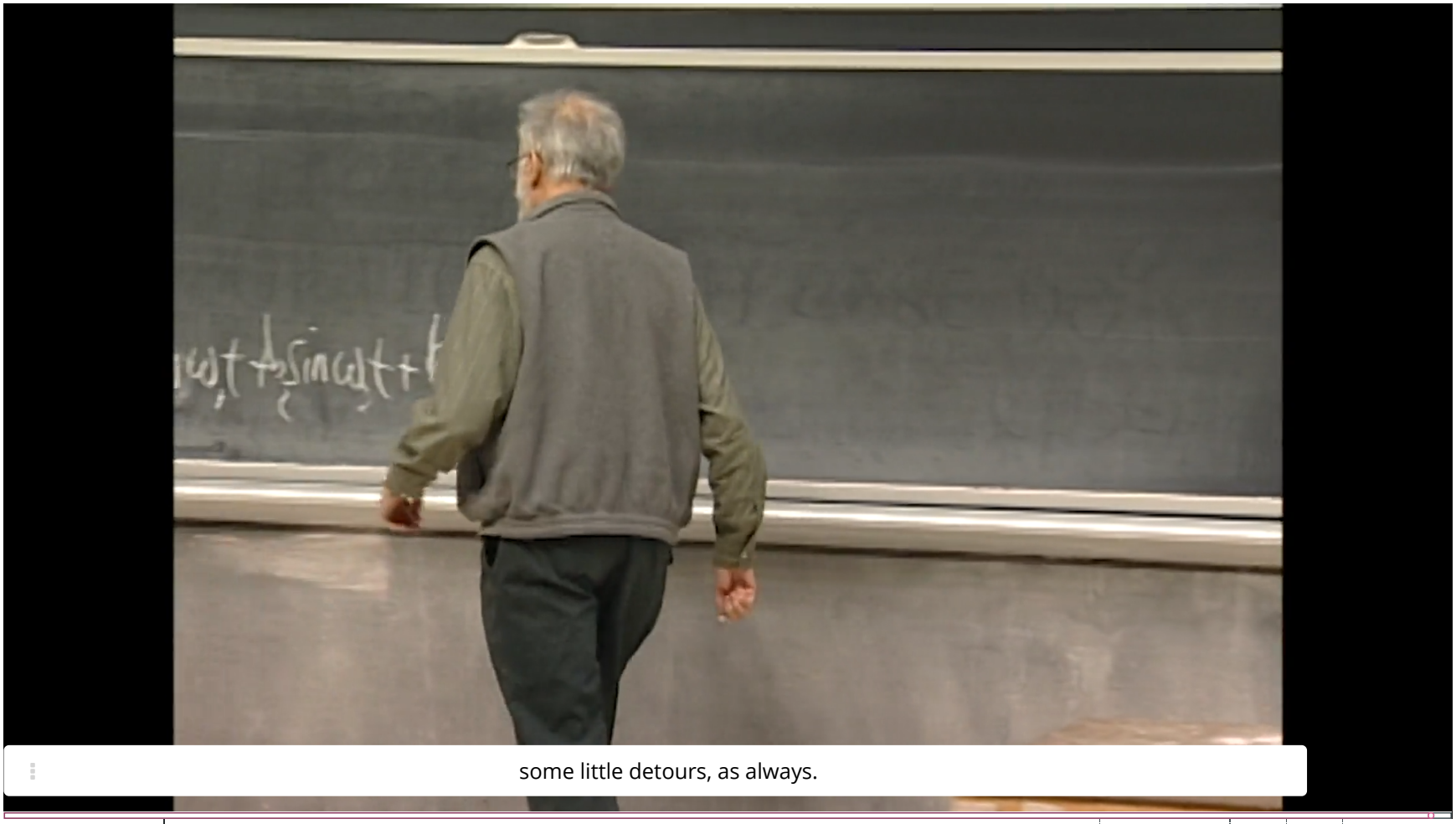
1. Solving ODEs with Fourier series

Objectives:

- Apply **Fourier series methods** to solve LTI differential equations with general periodic input signals.
- Describe the system response to a **general periodic input signal** in terms of a **Fourier series** .
- Use **resonance** to determine the **dominant Fourier coefficients** in a system response to an input signal described as a Fourier series.
- Think of **sound** as a superposition of sine waves, and understand the ears ability to pick out Fourier coefficients, rather than hearing the superposition of the waves as one object.

Goals



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One of the goals for today is to understand how resonance is related to the way we hear. In order to explain how the ear works to identify frequencies, we will have to review resonance, and we will detour into how we can solve differential equations with periodic input using Fourier series methods.

1. Solving ODEs with Fourier series

Topic: Unit 1: Fourier Series / 1. Solving ODEs with Fourier series

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Tone Deaf!

When Prof Mattuck said "tone deaf..." it brought back a memory from my MIT undergraduate days (1976). I took a music class from Professor John L. Buttrick, on Beethoven, i...

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