

Lect. II, Mar. 4, 2010

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Superposition of Waves (CH13)

We have learned that, in part II,

- ① A periodic motion can be decomposed into a series of sinusoidal motion — Fourier series
- ② A wave packet can be decomposed into a spectrum of sinusoidal waves — Fourier Integral

We are going to study, in part ~~III~~^{IV}, on the other hand, the superposition of waves from multiple sources in space

part III, CH13-17: Interference

part IV: CH18-21: Diffraction

- # Interference: superposition of waves from two or multiple point sources
 - e.g., Young's Interference Experiment (1801)
 - e.g., Michelson Interferometer (1881)

- # Diffraction: superposition of waves from one or multiple area sources, e.g., aperture
 - e.g., Diffraction by a circular Aperture
 - e.g., Diffraction Grating
 - spectrometer

- # Principle of Superposition: Linear combination

The resultant displacement (at a particular point) produced by a number of waves is the vector sum of the displacement produced by each one of the disturbances

