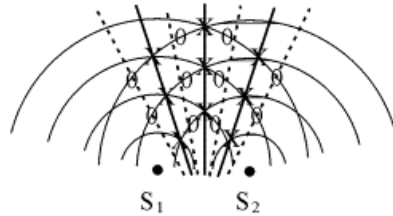


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Interference of water waves

If two point sources produce two sets of circular waves, they will overlap and combine to produce an interference pattern.



The semicircular lines represent crests; the troughs are between the crests.

S_1 and S_2 are **coherent** point sources, i.e. the waves are produced by the same vibrator.

X = point of constructive interference.

O = point of destructive interference.

— = line of constructive interference

- - - = line of destructive interference.

The points of **constructive** interference form waves with larger amplitude and the points of **destructive** interference produce calm water.

The positions of constructive interference and destructive interference form alternate lines which spread out from between the sources. As you move across a line parallel to the sources, you will therefore encounter alternate large waves and calm water.

Interference from one set of waves

It is possible to produce interference from one source of waves by division of the wavefront. Plane waves are made to pass through two small gaps (similar in size to the wavelength) to produce two coherent sources of circular waves by diffraction. These will then interfere as before.

