Answer on Question #68069 - Physics / Mechanics | Relativity

Question:

What will happen if the speed of the source of sound equals the speed of sound and the speed of the source increases with the speed of sound?

Answer:

The wave length of the moving sound wave in case when the source is also moving is defined as:

$$\lambda = \frac{2\pi(c-v)}{\omega_0}, where\ c - speed\ of\ sound\ wave\ and\ v - speed\ of\ source$$

$$if\ c = v, then\ c - v = 0\ and\ \lambda = 0\ which\ means\ that\ sound\ will\ not\ move\ out\ its\ source$$

$$if\ c\ < v, ten\ c - v\ < 0\ and\ \lambda\ < 0\ which\ means\ that\ sound\ will\ run\ behind\ the\ source.$$