

## Lorentz Length Contraction Historical Confusion with Light Aberration

By Professor Joe Nahhas 1977

**Abstract:** What we see is not what we measure. Distance measurement using signals introduces time delays because

Present time = present time

Present time = past time + [present time - past time]

Present time = past time + time delays

An object of length  $r$  could be seen longer or shorter if it extended or shortened  $\text{Exp}(\lambda t)$  or twisted  $\text{Exp}(i \omega t)$  making it in general  $r \text{Exp}[\lambda + i \omega] t$ . If the length of an object is not extended or shortened then  $\lambda = 0$  and it could be seen as a twisted visual effect.

Then  $r$  ----- Visual  $r = S = r \text{Exp} i \omega t$

If actual motion is  $r$  then time Visual motion is  $S$  where  $S = r \text{Exp}[i \omega t]$  caused by light aberrations visual effects as follows:

$\text{Exp}[i \omega t] = [\cosine \omega t + i \text{sine} \omega t]$ ; From  $S = r \text{Exp}[i \omega t]$  we can show that

It changes to:  $S = r [\cosine \omega t + i \text{sine} \omega t]$

$$= r \{ \sqrt{[1 - \text{sine}^2 \omega t]} + i \text{sine} \omega t \}$$

$$= S_x + i S_y$$

**Light aberration:**  $\omega t = \text{arc tan}(v/c)$

Where  $S_x = r \sqrt{[1 - \text{sine}^2 \text{arc tan}(v/c)]}$ ; And  $S_y = \text{sine} \text{arc tan}(v/c)$ ;  $\omega t = \text{arc tan}(v/c)$

With  $v/c \ll 1$  then; Where  $S_x = \sqrt{[1 - \text{sine}^2 \text{arc tan}(v/c)]}$ ; And  $S_y = \text{cosine} \text{arc tan}(v/c)$

In absolute value  $S = r$

Along the line of measurement:

$$S_x = \sqrt{[1 - \text{sine}^2 \text{arc tan}(v/c)]} = r \sqrt{[1 - (v/c)^2]}$$

$$S_x = r \sqrt{[1 - (v/c)^2]}$$

This is the equation for length contraction of Lorentz's used in Einstein's theories

But it is the light aberrations visual effects and it is "apparent" and not real except on Campus.