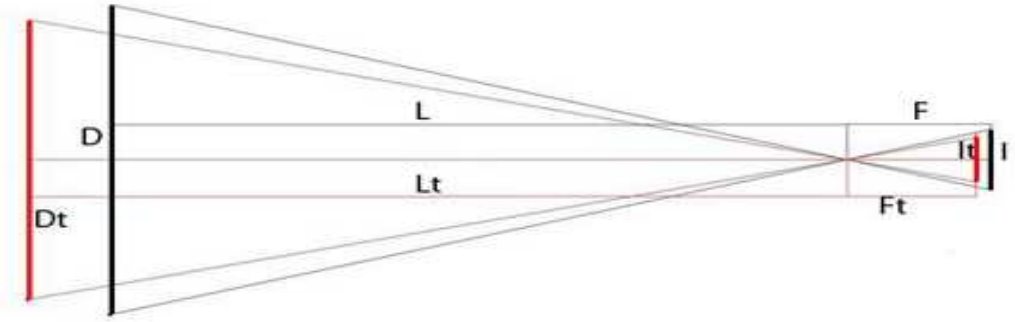
Measuring the diameter of the stars through the camera fixed.

As noted, the centers of mass move away in proportion to the growth of the universe and on the other hand the atomic radius of the local matter, will change in inverse proportion to the growth of the universe, or will shrink.



Initially we will then we will see a star with a diameter D, and at a distance L. The limit of the image will go through our point of focus and will project an inverted image on film, I, and therefore we have:

$$\frac{I}{F} = \frac{D}{L}$$

$$I = \frac{F\,D}{L}$$

Where:

T_o The current age of the universe

T_f The future age of the universe

In the future we will have:

$$I_f = \frac{F_f\,D_f}{L_f}$$

$$I_f = \frac{F_f \frac{T_o}{T_f} D_f \frac{T_o}{T_f}}{L_f \frac{T_f}{T_o}}$$

$$I_f = I_f\,(\frac{T_o}{T_f})^3$$

But we have to take into account that the film itself, will also shrink, hence the extent that we find will not be real:

$$I_f = \frac{I_f \left(\frac{T_o}{T_f}\right)^3}{\frac{T_o}{T_f}}$$

$$I_f = I_f \left(\frac{T_o}{T_f}\right)^2$$

When making the measurement we find a contraction of the star to be measured, not in inverse proportion to age / expansion of the universe but in proportion to the square of this value.

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