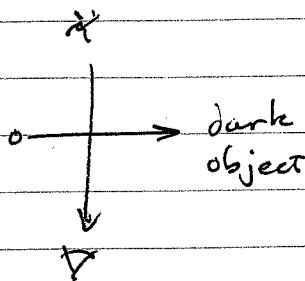


Micro lensing

Magnification of
background source

caused by unresolved

Einstein ring as lens moves across image



results in a net amplification A (can be large!)

of expected microlensing events

$$N(>A) = \frac{2\tau}{(A^2 - 1) + A\sqrt{A^2 - 1}}$$

where the lensing optical depth is

$$\tau = \frac{4\pi G}{c^2} \int \frac{D_L D_{LS}}{D_S} \rho dl$$

for thin screen of lenses, $\tau \rightarrow K = \frac{z}{z_{crit}}$

for MACHOs in the halo,

$$\tau = 2\pi \frac{\sigma_v^2}{c^2} \frac{D_L D_{LS}}{r D_S}$$

to LMC $\tau = 5 \times 10^{-7}$ if all halo in MACHOs

$\tau < 1 \times 10^{-7}$ observed