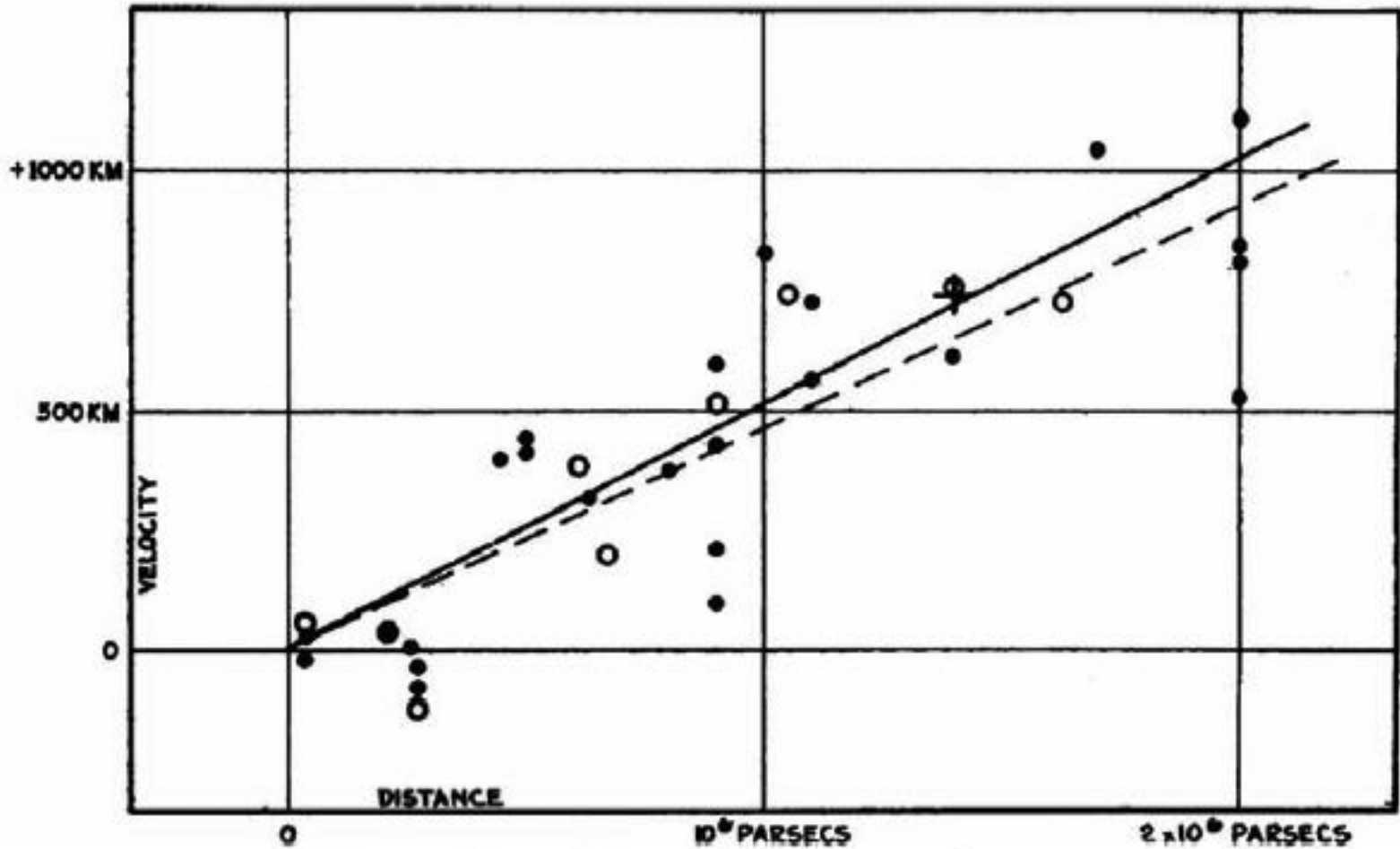


# Chameleons

Manwei Chan

# Hubble (1929)



# Adam Reiss

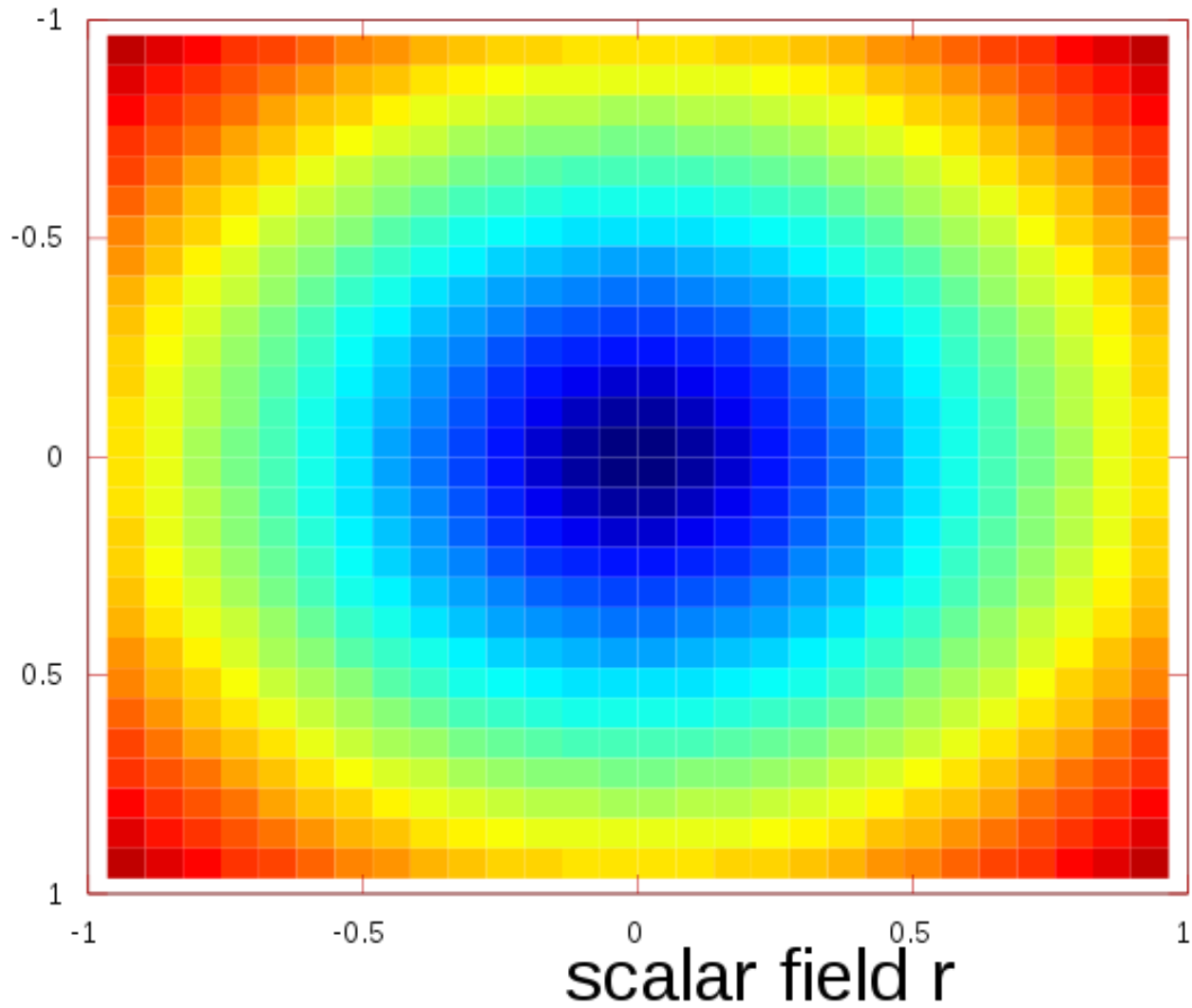
“Everything we know about dark energy could be summarized on a fortune cookie strip”



# Chameleons



# Scalar Field





# CAST



# Fabry-Perot Cavity

Red light enters the  
Fabry-Perot cavity

Red light is reinforced  
(constructive interference)

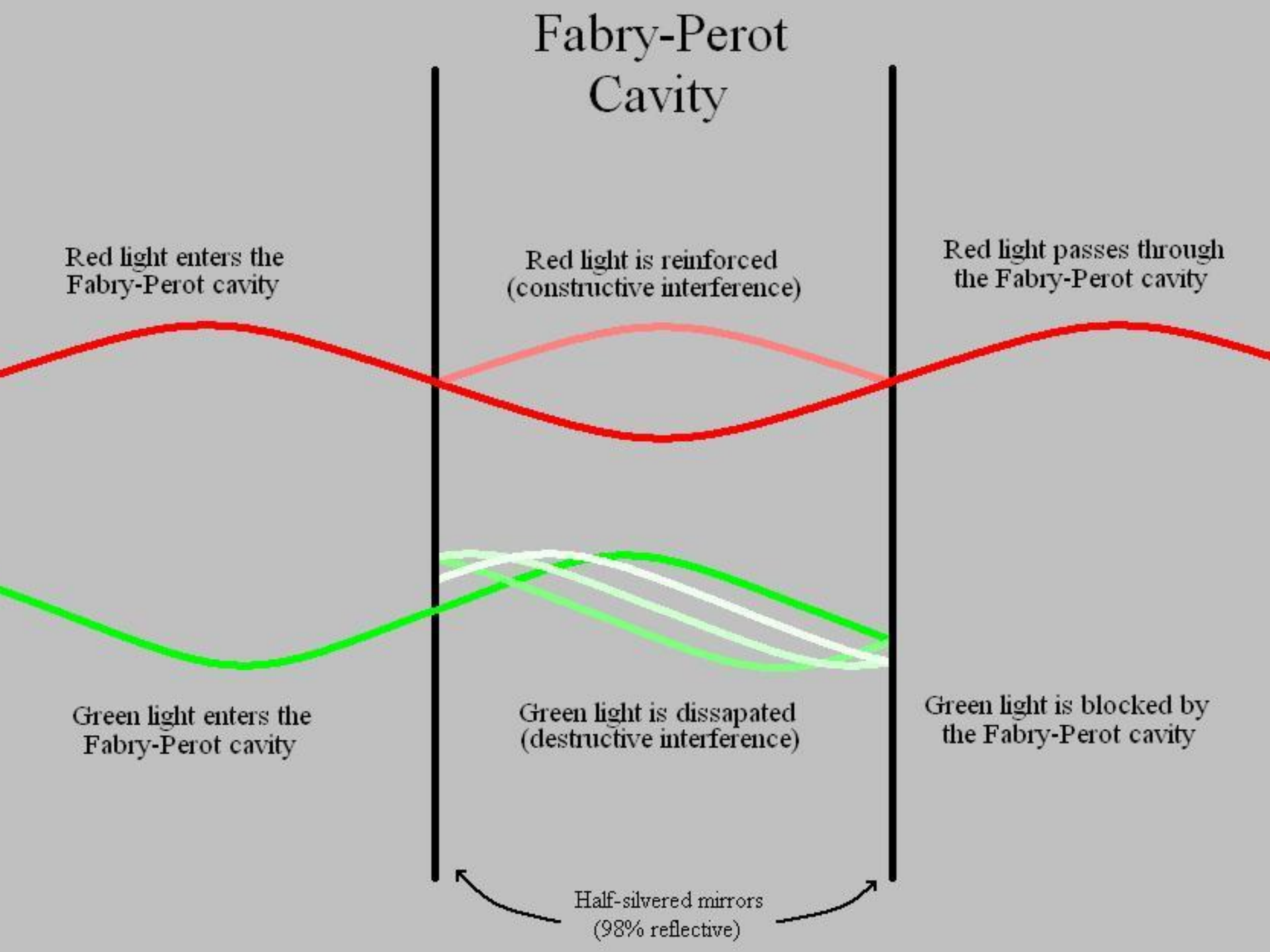
Red light passes through  
the Fabry-Perot cavity

Green light enters the  
Fabry-Perot cavity

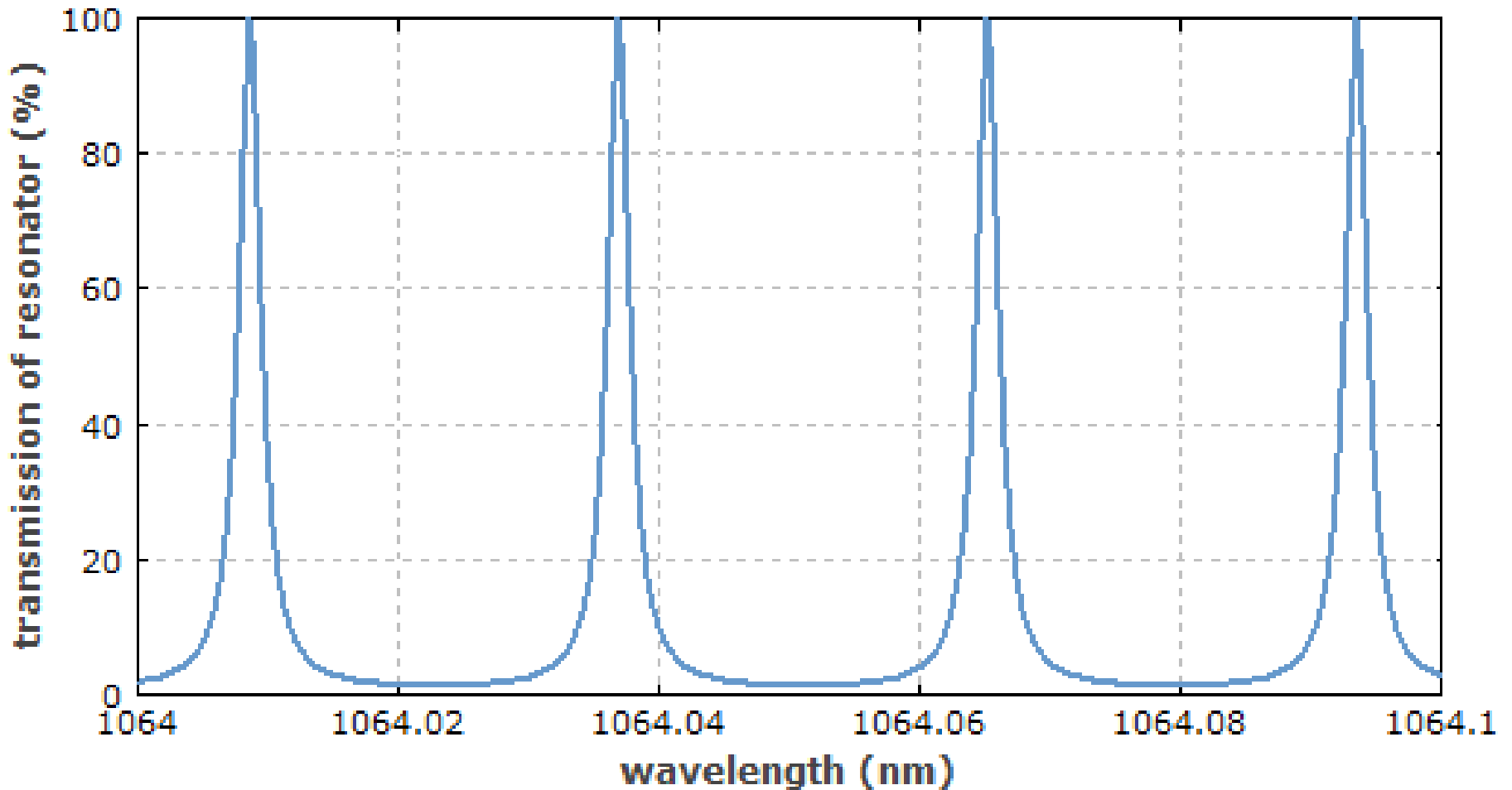
Green light is dissipated  
(destructive interference)

Green light is blocked by  
the Fabry-Perot cavity

Half-silvered mirrors  
(98% reflective)

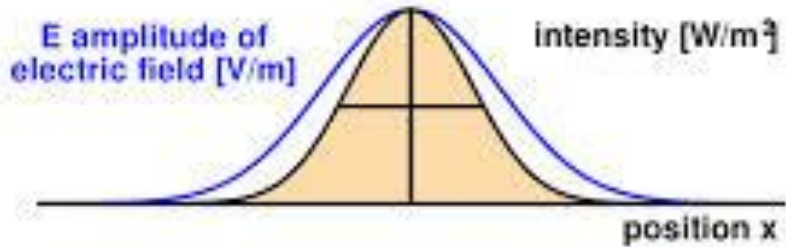
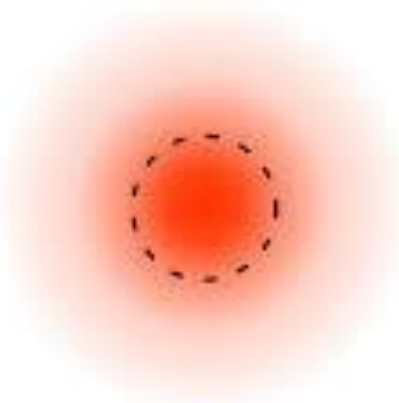
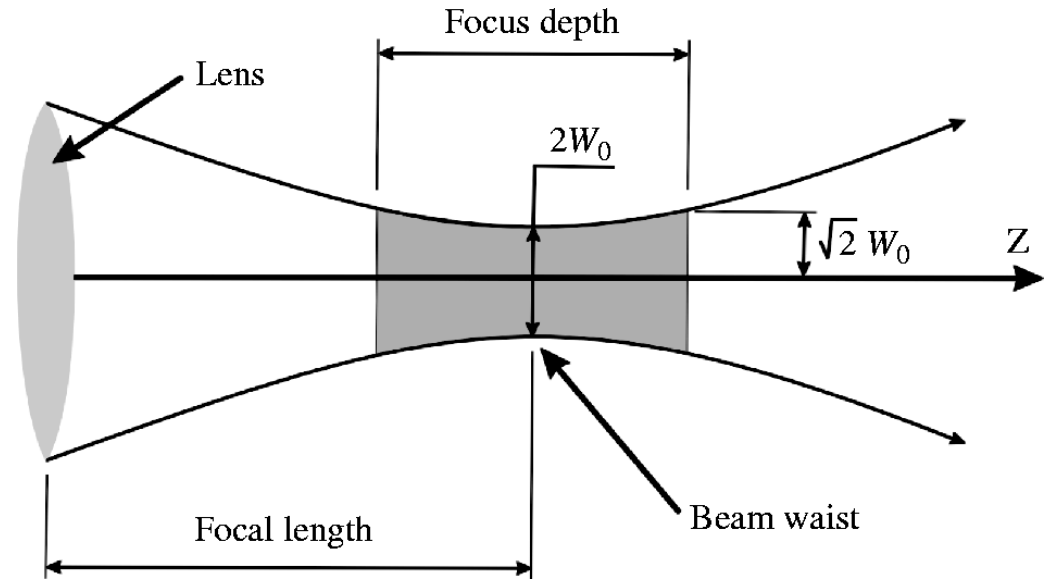
The diagram illustrates a Fabry-Perot cavity, which is a resonator consisting of two parallel, partially reflective mirrors. The mirrors are represented by two vertical black lines. A red wave enters from the left, passes through the first mirror, and is reflected back by the second mirror. The reflected wave is in phase with the incident wave, leading to constructive interference and a larger amplitude wave. This wave then passes through the second mirror. A green wave enters from the left, passes through the first mirror, and is reflected back by the second mirror. The reflected wave is out of phase with the incident wave, leading to destructive interference and a smaller amplitude wave. This wave is then reflected back by the first mirror, and the process repeats. The text labels describe the entry, interference, and exit of both light colors.

# Sensitivity





# Gaussian Beam



Questions?