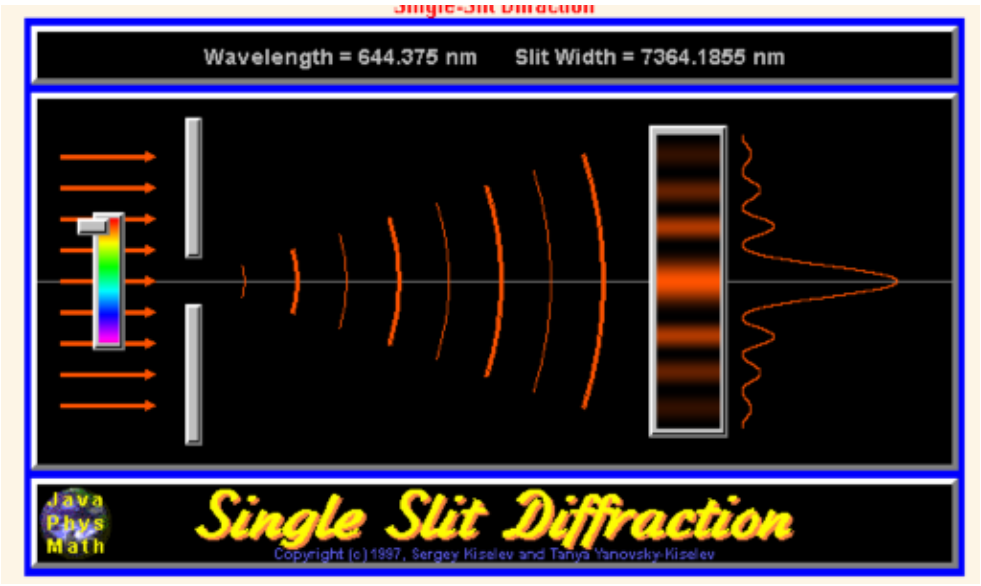
Lecture 8
Summary of optical phenomena and properties

Concept or process	Equation or variable name	Equation and (or) diagram
Interference (superposition) Constructive Destructive		
Diffraction: Single slit		minima where $W\sin\theta = m\lambda$ or $\sin\theta = m\lambda/W$ angular width of central maximum $\approx \lambda/W$ physical half-width of central maximum at distance b from slit $\approx b\lambda/W$ distance between side fringes = λ/W see Fig. LN3A-1

Diffraction: Multiple slits		maxima at $d\sin\theta = m\lambda$ or $\sin\theta = m\lambda/d$ angular width $= \lambda/Nd$ distance between fringes $= \lambda/d$ see Fig. LN3A-1 & -2
Polarization of light Linear Circular		

Elliptical Polarization configurations		
Optical rotatory dispersion Circular dichroism Production of linearly polarized light		



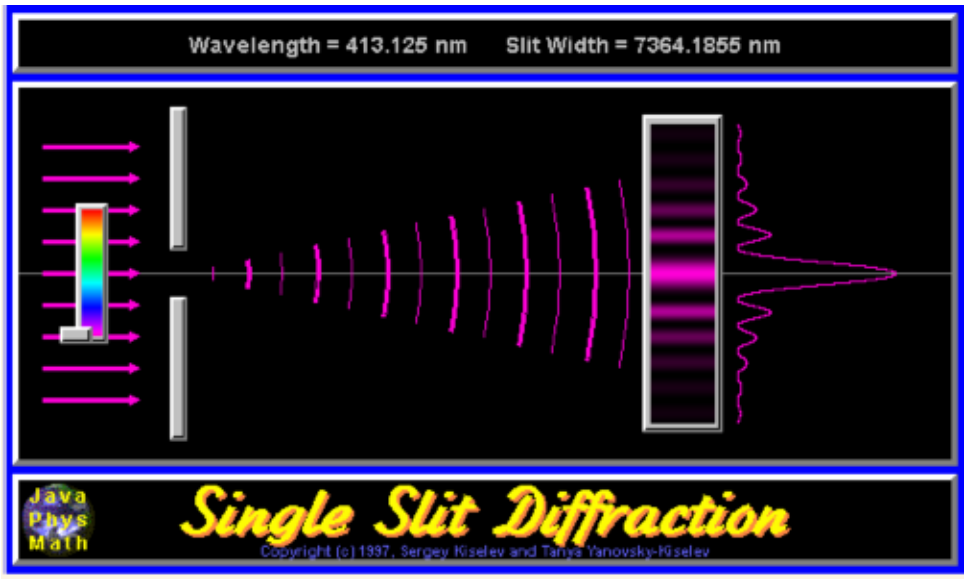
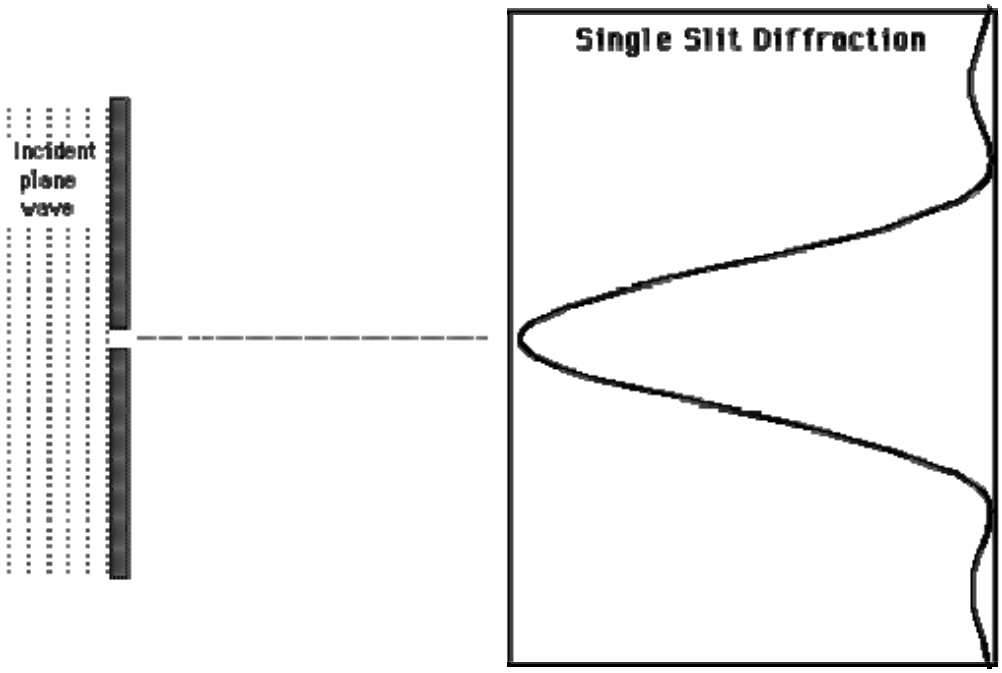
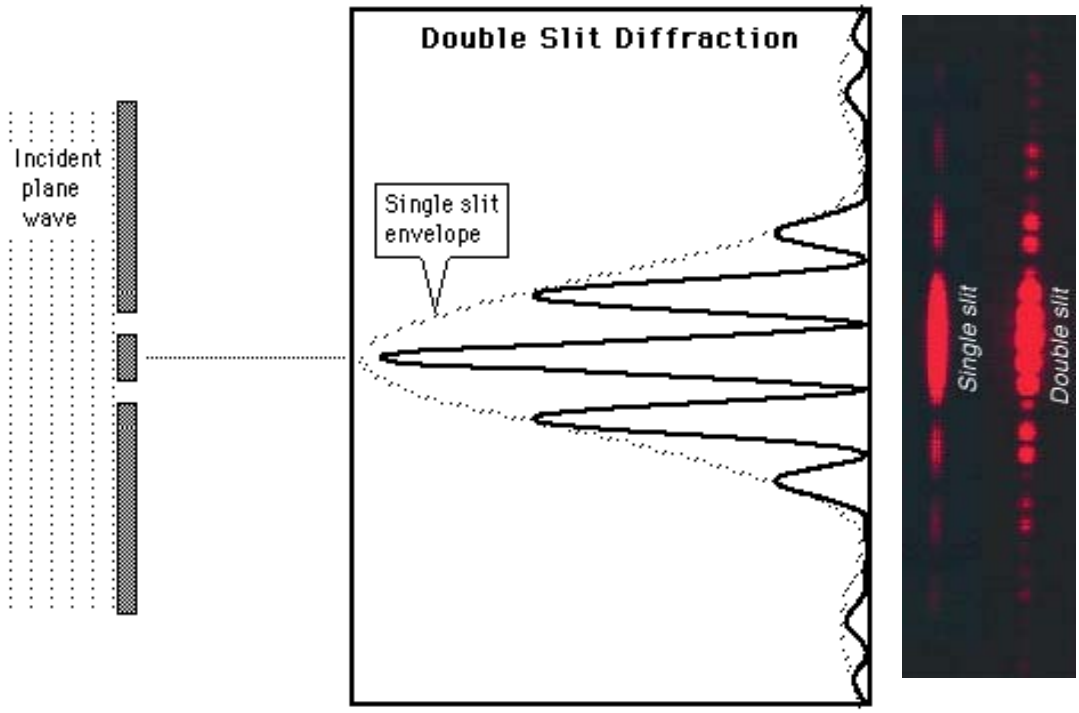
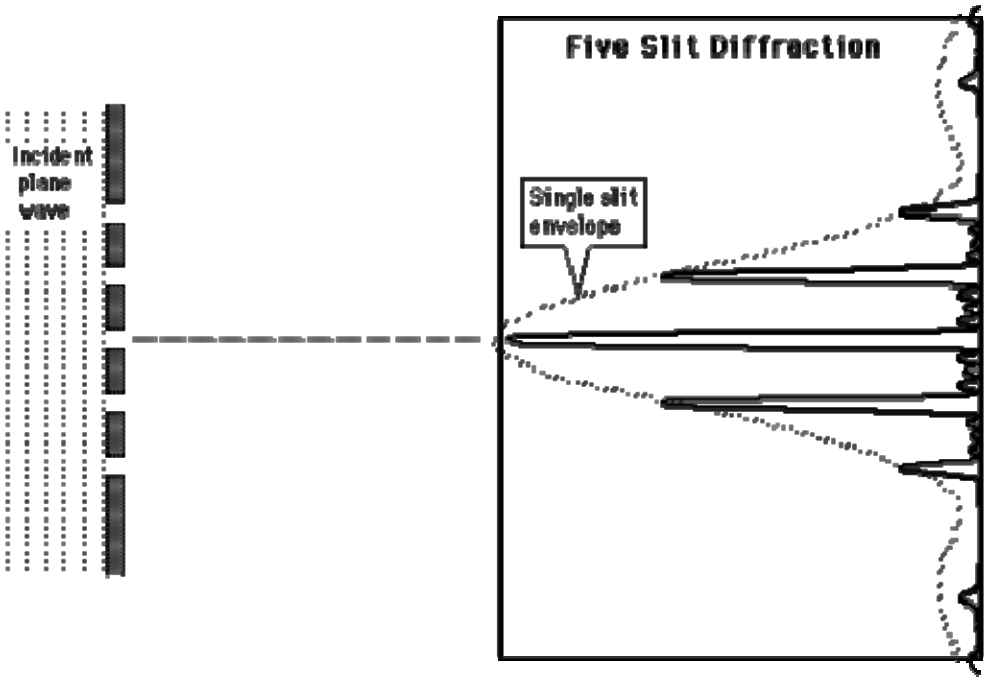


Fig. LN3A-1. Single Slit Diffraction. taken from
http://webphysics.ph.msstate.edu/javamirror/ipmj/java/slitdiffr/index.html


Single Slit Diffraction
Incident plane wave


Double Slit Diffraction
Incident plane wave
Single slit envelope
Single slit
Double slit



Comparison of single and multiple slit diffraction
Fig. LN3A-2. Single- and Multiple Slit Diffraction. taken from http://hyperphysics.phy-astr.gsu.edu/hbase/phyopt/mulslid.html#c3