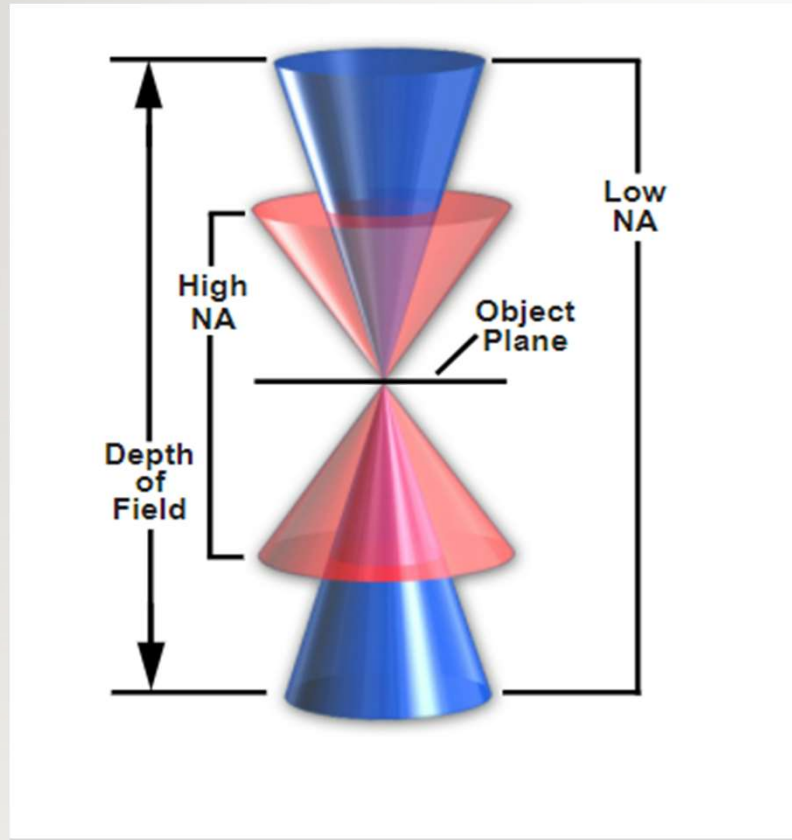


Depth of field:



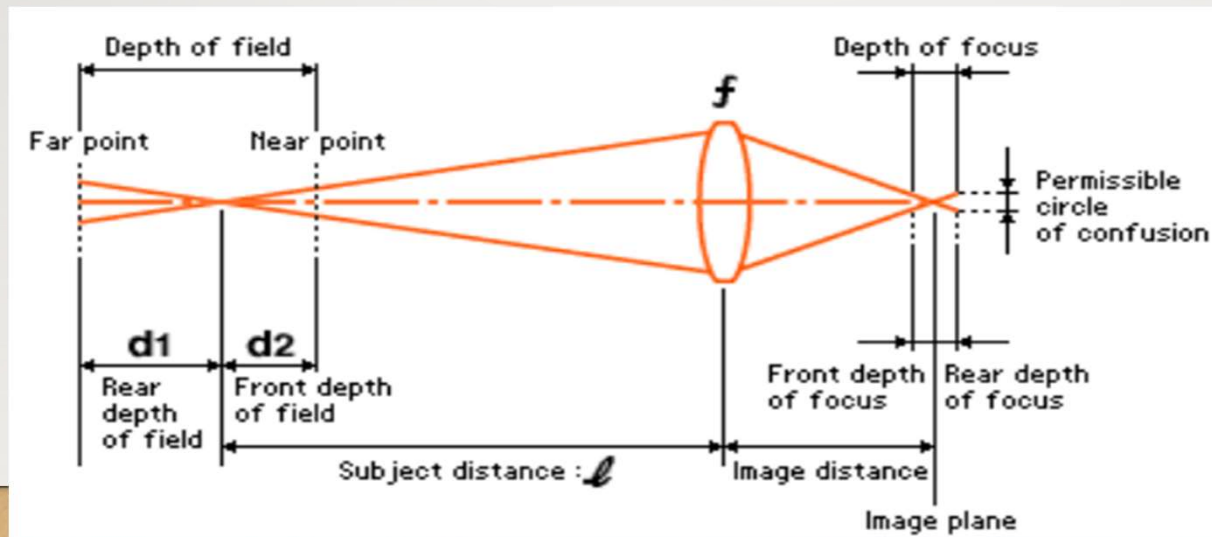
- Depth of field is limited in objectives having high NA.
- Small depth of field causes focusing problem, mounting problem etc.
- Examining irregular surfaces becomes difficult.

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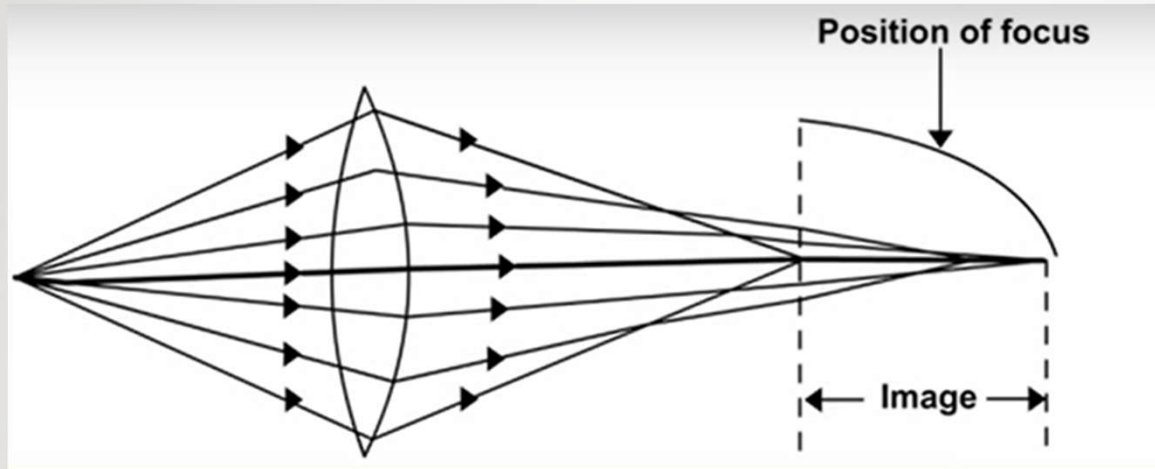
Field of view:

- It is a diameter of the primary image that can be observed in an eyepiece.
- $S = m * d$ where s is the field of view index and d is diameter of object field.
- Lower will be the magnification of objective greater will be the field of view.

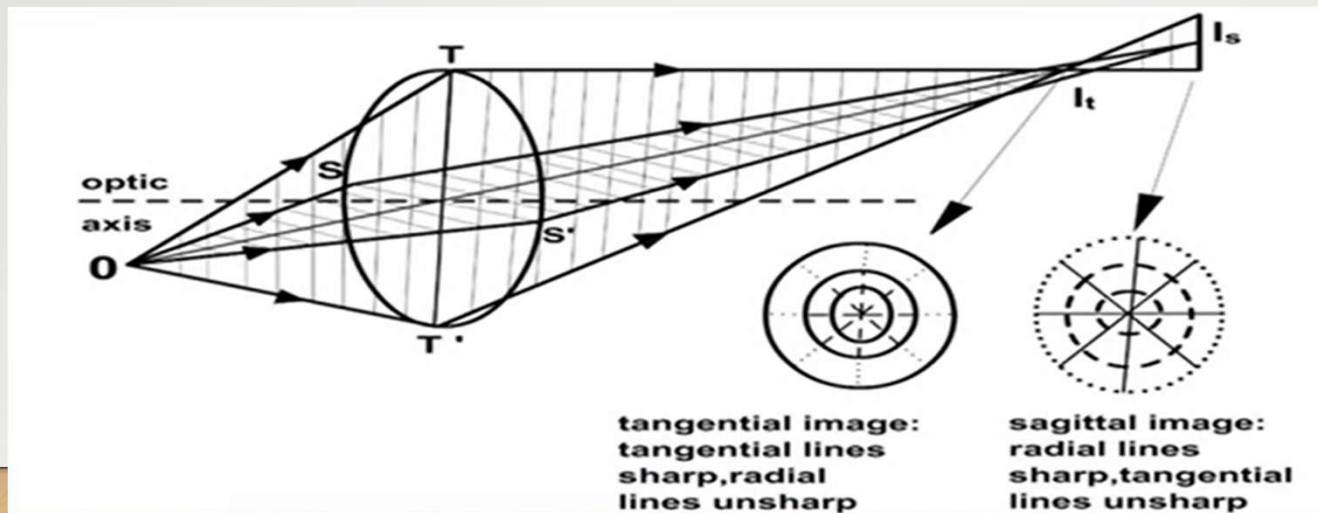
Depth of focus:



Lens Defects

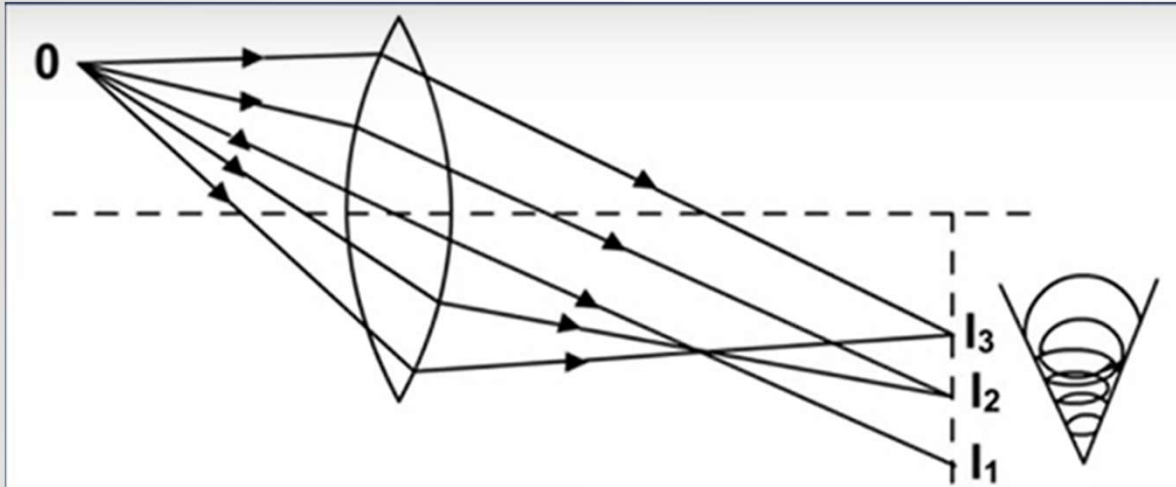


Spherical aberration

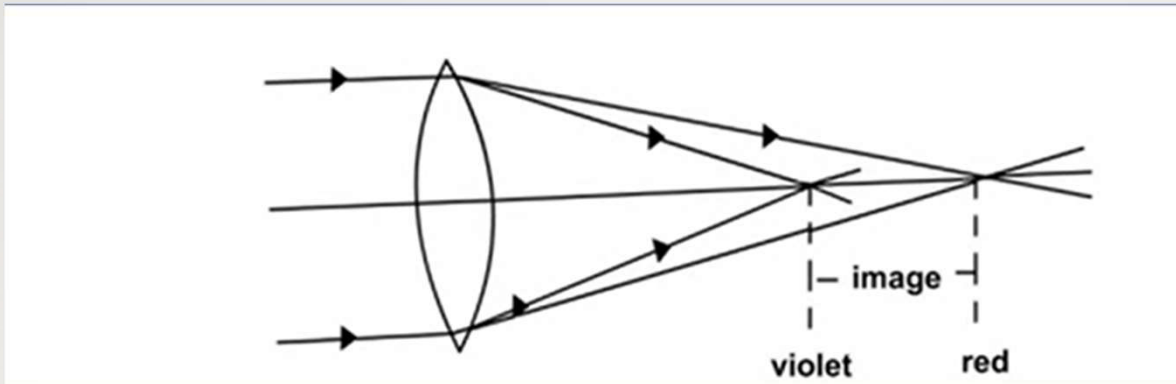


Astigmatism





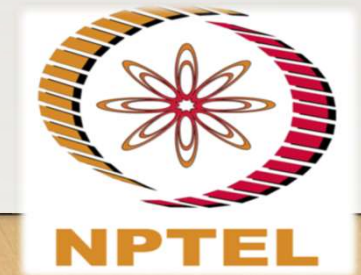
Coma and distortion



Chromatic aberration

True or False?

1. Coma is the off-axis defect that makes the image to be a blurred disk or lines.
2. Rays from the corner of the lens and from the center of the lens are not in focus. This effect is attribute to spherical aberration.
3. The rays of different colors fail to converge at a point after going through a converging lens. This effect is attribute to chromatic aberration.
4. The greater the aperture of the lens, less severe will be the spherical aberration.



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Which of the following lens defect is on-axis aberration?

1. Coma
2. Astigmatism
3. Chromatic
4. None of the above



17

In light microscopy, during bright-field illumination the region which appears bright are from

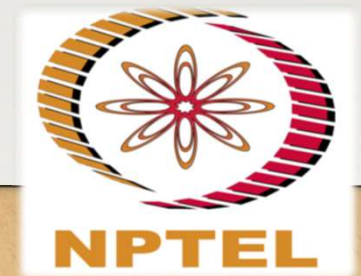
1. Low reflectivity rays
2. High reflectivity rays
3. Independent of reflectivity



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In Optical microscope filters are used to adjust

1. Frequency of illumination
2. Wavelength of illumination
3. Intensity of Illumination
4. Both intensity and wavelength



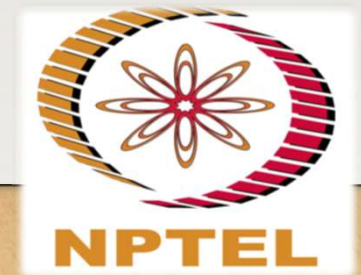
19

Condenser is not required in light microscopy, up to a total magnification of:

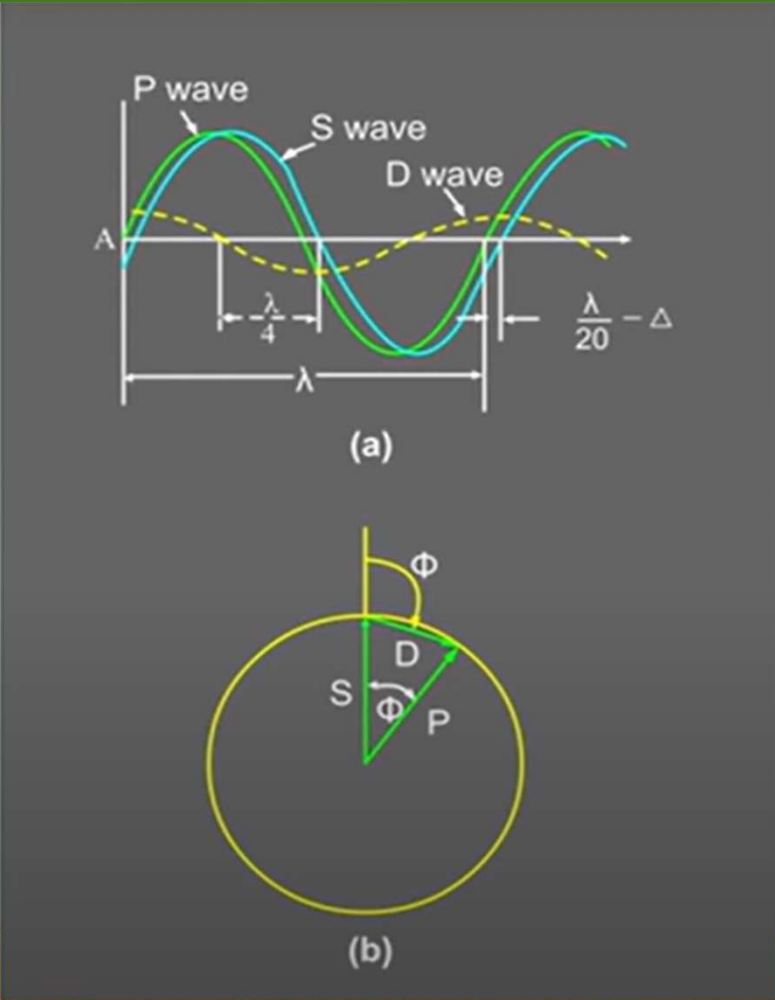
1. 100X
2. 75X
3. 50X
4. 25X

Which of the two optical microscope components combine to give a magnified view of a small specimen?

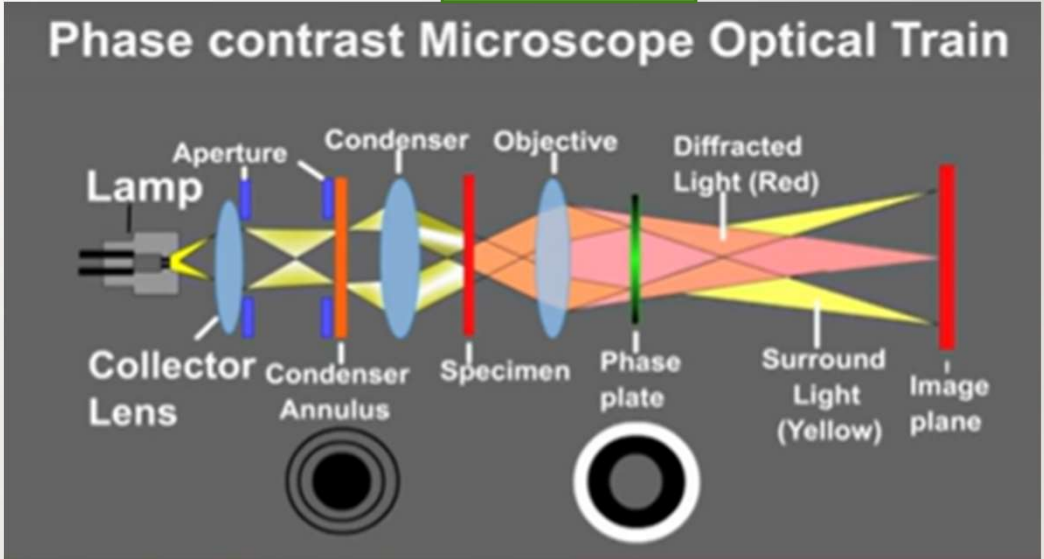
1. Objective and ocular lens
2. Condenser and objective
3. Ocular and condenser
4. Ocular and eye-piece

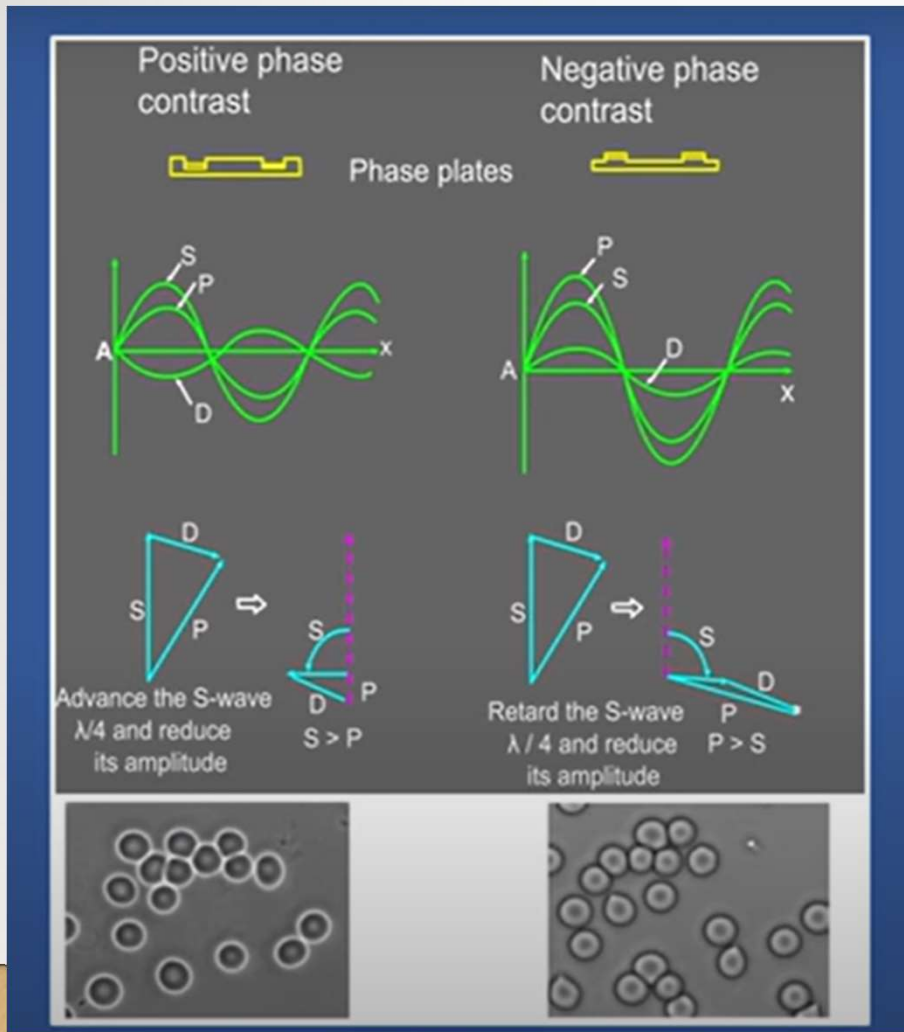


Phase object in BF microscope issue!!



Solution





- Amplitude profile of waves showing destructive and constructive interference for high R.I object.
- The phase plate advances or retards the S wave relative to D.
- The amplitude of P wave lower or higher relative to S causing object to look relatively darker or brighter than background.

In phase contrast microscopy the amplitude of the light wave correspond to:

1. Brightness of the reflected rays
2. Difference between the crest and trough of the wave
3. Difference in the optical path length between specimen ray and reference ray
4. Phase shift introduced.

