

Reflected light microscopy

The microscope is an instrument used in histology and one of the main goal is to enable the microscopic structure of cells, tissues and organs. Reflected light microscopy is one of the method of light microscopy.

Reflected light microscope

In reflected light microscope the light incident on the sample and it is reflected so speculate. There is one half-mirror in which **50% of the light is reflected** and **50% of the light is transmitted**, with losses in intensity image, but gains on the final resolution.

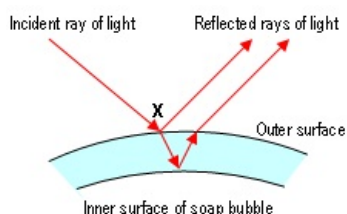
The reflected light microscope use ingenious systems of mirrors, prisms and semi-mirrored glasses which let pass the light in one direction and reflects in the other.

Polarizing microscopy can be used with reflected and transmitted light. **Reflected light is useful for study of opaque materials** such as mineral oxides and sulfides, metals and silicon wafers and requires stress-free objectives that have not been corrected for viewing through a coverslip.

As the electrons of the conductive layer of metals interact strongly with photons what make the sample not transparent enough to be observe with a transmitted light microscope, therefore the reflected light microscope was created.

Reflected light microscopy is often referred as incident light, dpi-illumination, or metallurgical microscopy, and is the method of choice for fluorescence and for imaging specimens that remain opaque even when ground to a thickness of 30 micrometers. Much like the fluorescence microscope, in reflected bright field microscopy the sample is illuminated from above through the objective.

A very important technique in reflected light microscopy is the existence of a dark field, which allows through an oblique illumination (obtained by placing an obstacle in the center of the light beam) obtaining a bright contrast in regions which have a small inclination to the surface .



Legend: behavior of the light rays

Notes

Reflected light microscopy is frequently the domain of industrial applications, especially in the rapidly growing semiconductor arena and this represents a most important segment of microscopical studies.

Links

Related articles

External links

Bibliography

<http://zeiss-campus.magnet.fsu.edu/articles/basics/reflected.html>
<http://www.olympusmicro.com/primer/anatomy/reflectkohler.html>
<http://micro.magnet.fsu.edu/primer/anatomy/reflected.html>