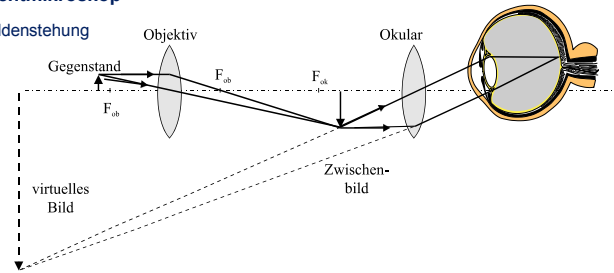




VII. Mikroskopie

1. Lichtmikroskop

Bildenstehung

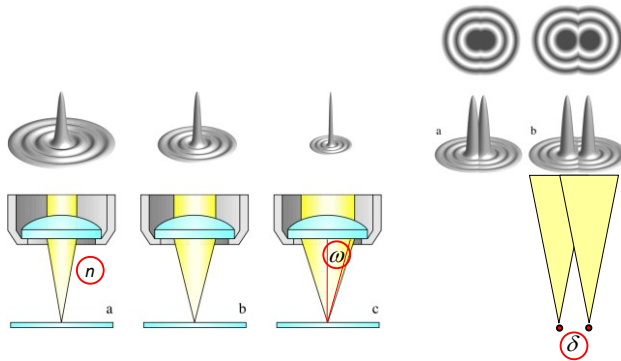


Vergrößerung:

1

2

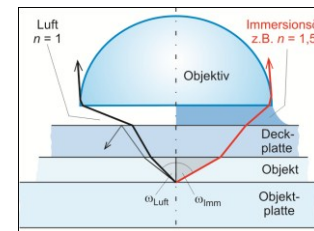
Auflösungsgrenze (δ):



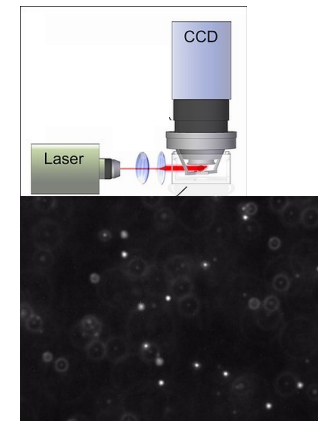
3

2. Spezialmikroskope

Immersionsobjektiv

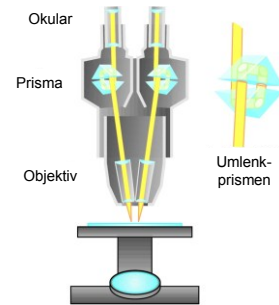


Ultramikroskop (Dunkelfeldmikroskop)



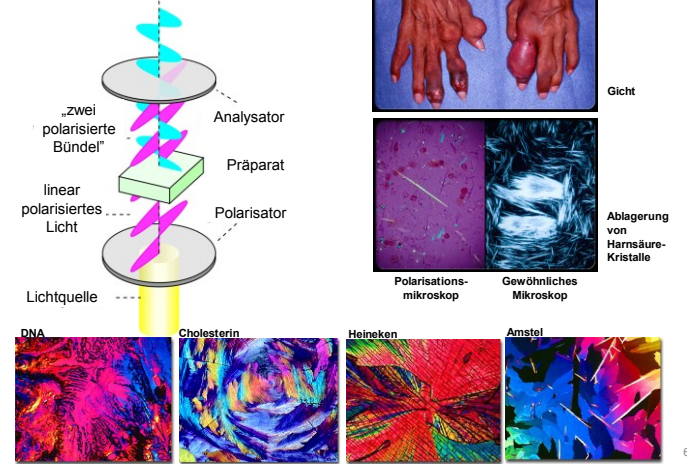
4

▪ Stereomikroskop



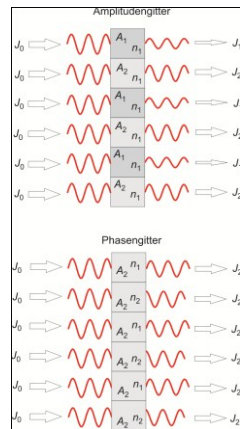
5

▪ Polarisationsmikroskop



6

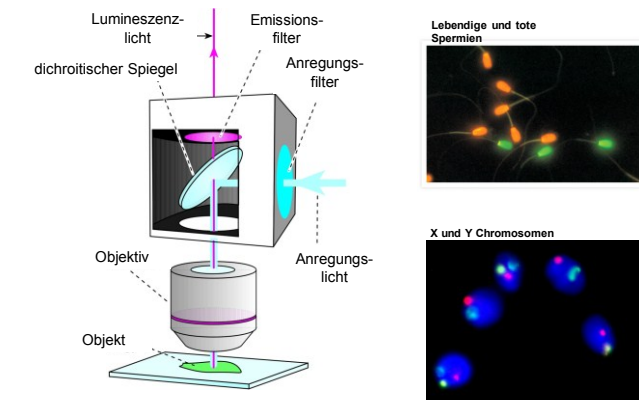
▪ Phasenkontrastmikroskop



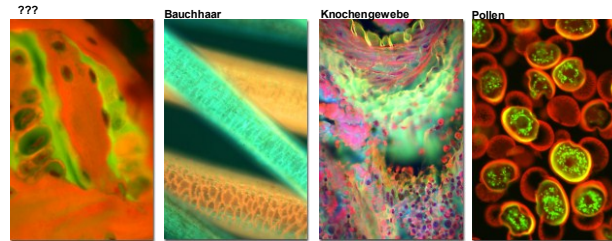
7

▪ Fluoreszenzmikroskop

Epifluoreszenz-Anordnung:

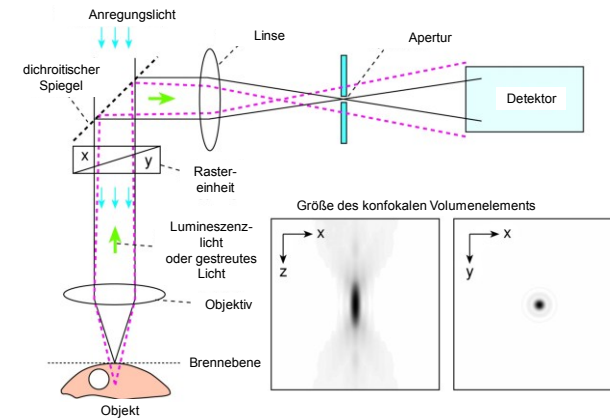


8

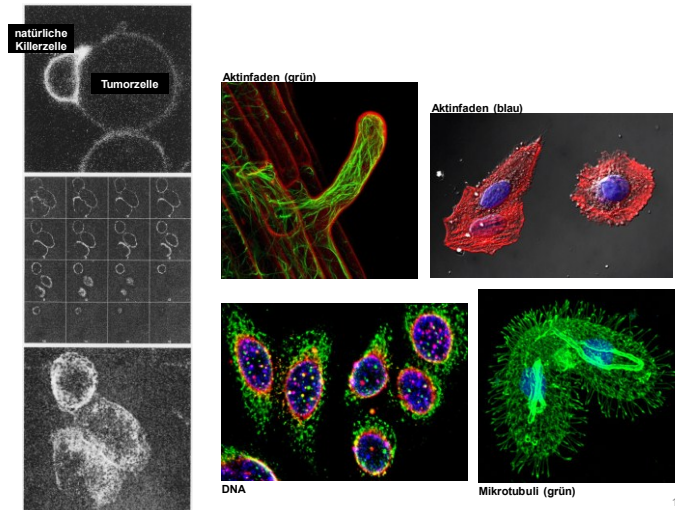


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3. Konfokales Laser Rastermikroskop (CLSM)

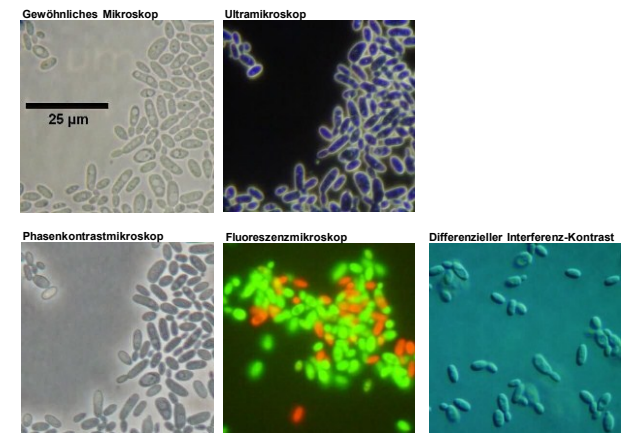


10



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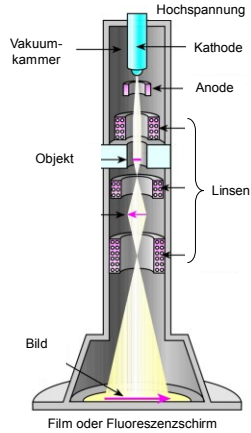
Beispiel: Hefe unter verschiedenen Mikroskopen



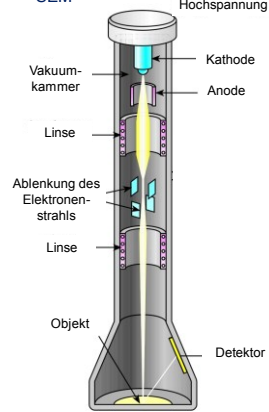
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4. Elektronenmikroskope

TEM



SEM



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Auflösungsgrenze (δ): $\delta \approx \frac{\lambda}{A}$

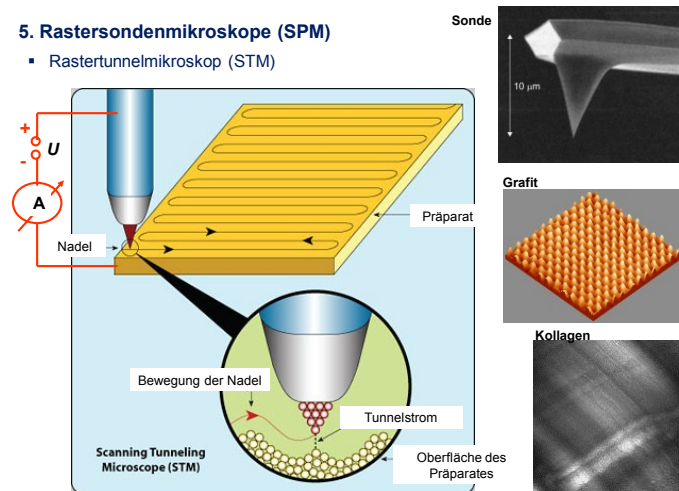
λ ?



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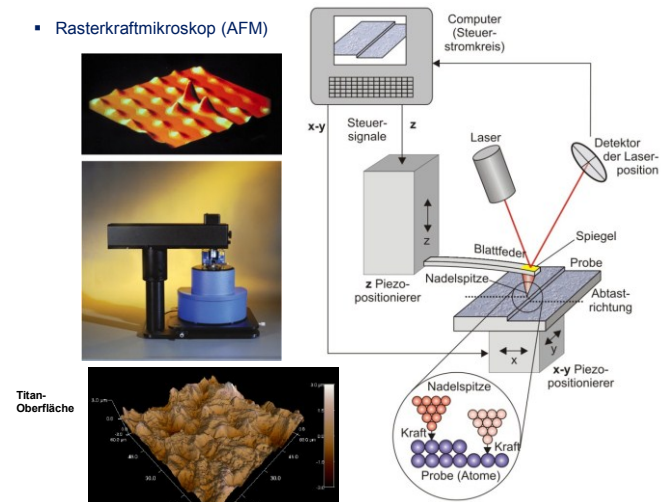
5. Rastersondenmikroskope (SPM)

Rastertunnelmikroskop (STM)

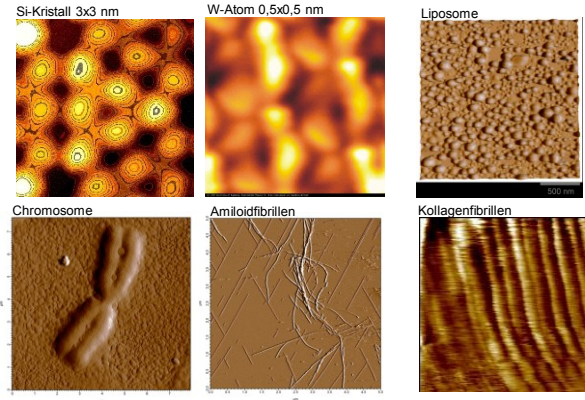


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Rasterkraftmikroskop (AFM)



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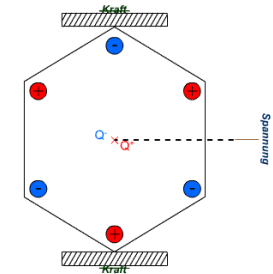


- Auflösung:
 - Spitze der Sonde
 - Feinheit des Rastern → Piezopositionierer

17

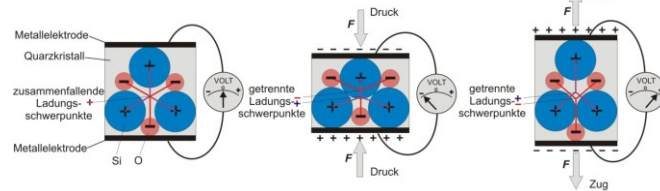
▪ Piezoelektrizität (piezoelektrischer Effekt)

(s. später Sonographie)

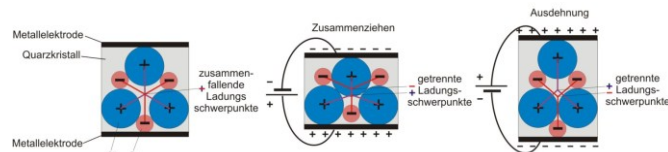


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▪ Direkter piezoelektrischer Effekt



▪ Inverser piezoelektrischer Effekt



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Biophysik für Mediziner

- VI/2.2
- VI/2.3
- X/2
- X/3.1
- X/5

Praktikumsbuch

- Kapitel 3
- Kapitel 4

Rechenaufgabe:
Praktikumsbuch: 17, 54, 55

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