Quizfragen

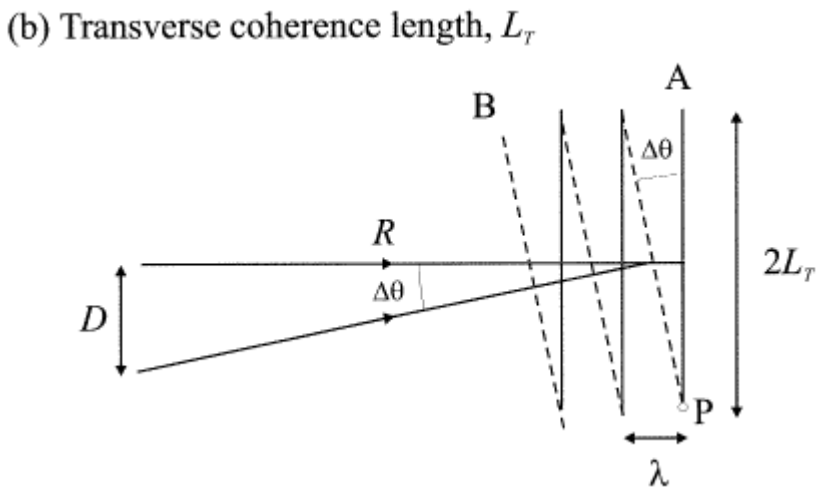
Welche Formel für die transversale Kohärenzlänge von Licht ist korrekt?

A) $L_T = \frac{1}{2} * \frac{\Delta\lambda^2}{\lambda}$

B) $L_T = \frac{\lambda}{2} * \frac{R}{D}$

C) $L_T = \frac{A}{B} * \frac{R}{D}$

D) $L_T = \frac{\lambda^2}{2} * \frac{R}{D}$

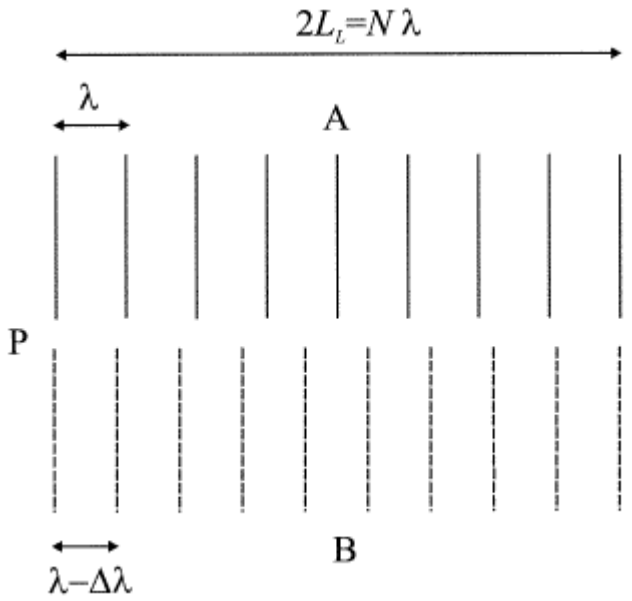


Welche Formel für die longitudinale Kohärenzlänge von Licht ist korrekt?

A) $L_L = \frac{1}{2} * \frac{\Delta\lambda^2}{\lambda}$

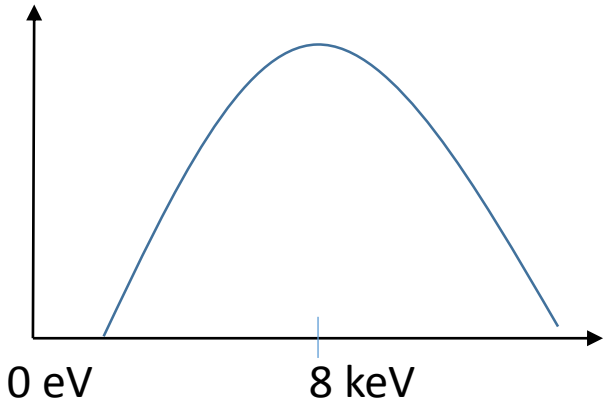
B) $L_L = \frac{1}{2} * \frac{\lambda^2}{\Delta\lambda}$

C) $L_L = \frac{1}{2} * \frac{\Delta\lambda}{\lambda}$

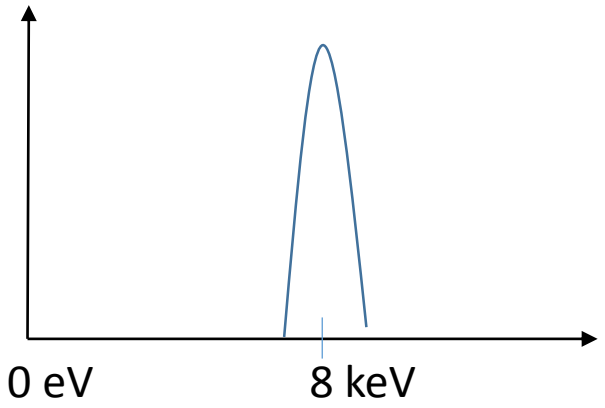


Welche Quelle ist brillianter?

A)



B)



C) Beide gleich brilliant

$$\text{Brilliance} = \frac{\text{Photons/second}}{(\text{mrad})^2\ (\text{mm}^2\ \text{source area})\ (0.1\%\ \text{bandwidth})}$$

Which scattering pattern do you observe when you illuminate a powder of cubic crystals with a unit cell dimension of 4 Å with a wavelength of 4 Å?

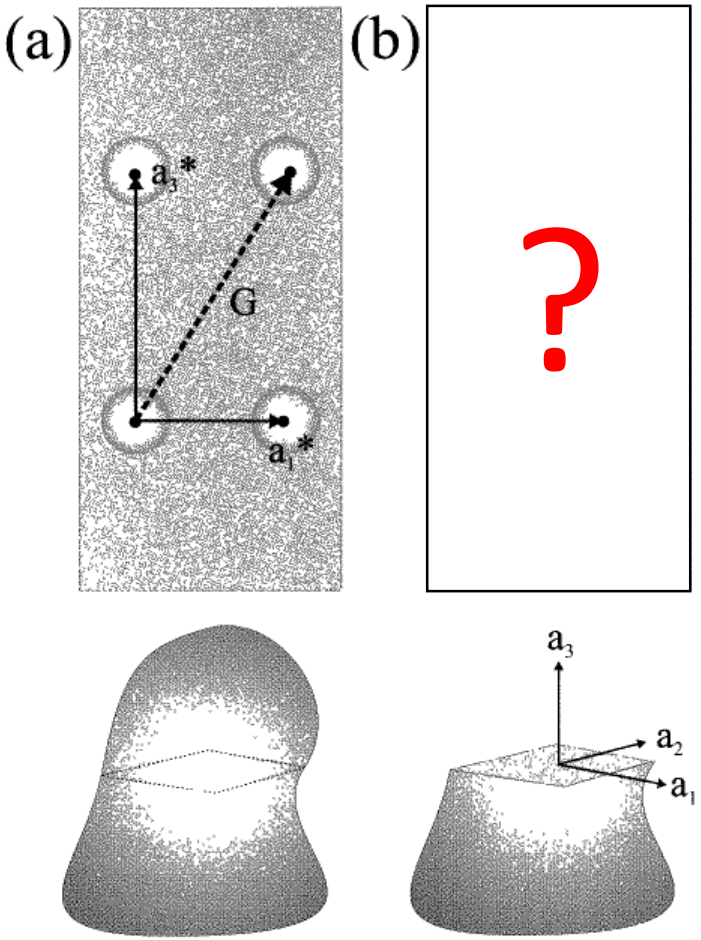
A)

B)

C)

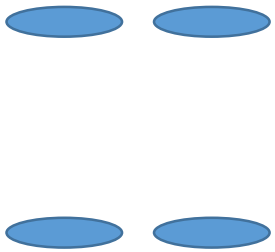
D)

Draw the scattering pattern of a (not infinite) truncated crystal?

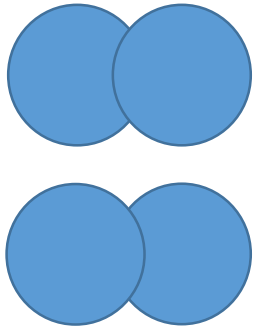


Draw the scattering pattern of a (not infinite) truncated crystal?

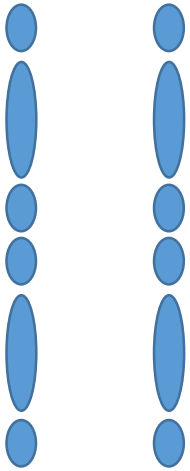
a)



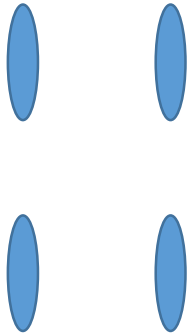
b)



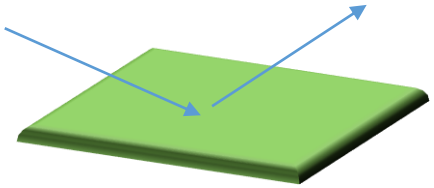
c)



d)



Draw the scattering pattern of an individual lattice plane?



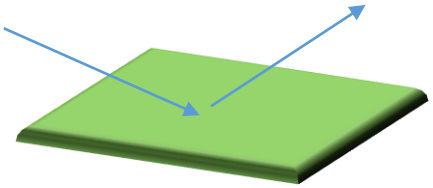
a)

b)

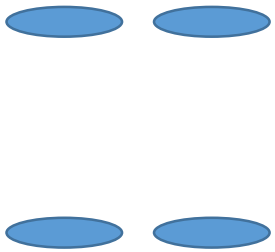
c)

d)

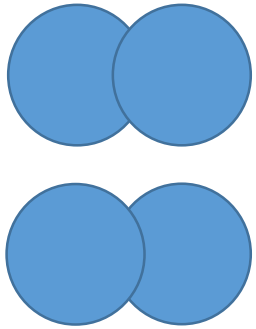
Draw the scattering pattern of an individual lattice plane?



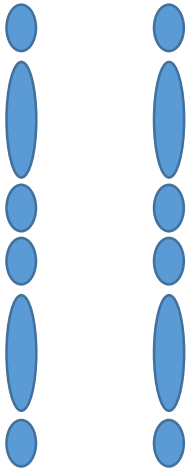
a)



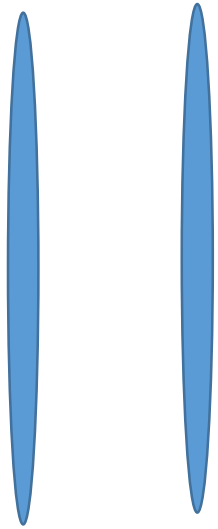
b)



c)

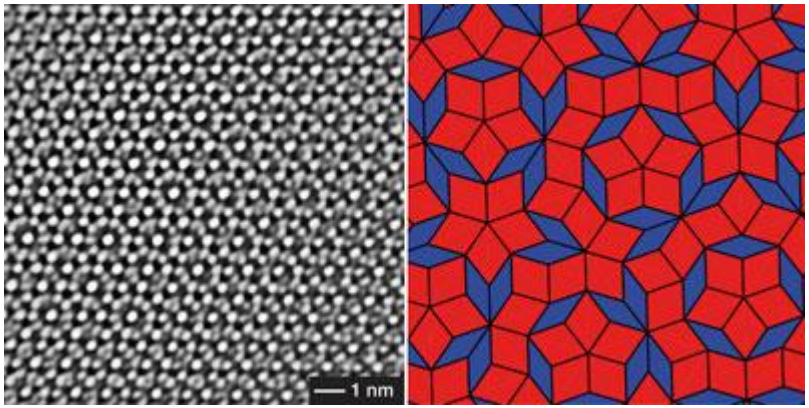


d)



What does the scattering pattern of quasiperiodic quasicrystals look like?

A) Sharp Bragg reflection, regularly spaced
B) Sharp Bragg reflections, not regularly spaced
C) Broad reflection maxima, not regularly spaced
D) No Bragg reflections



Electron-microscopy image (left) and Penrose tiling (right)

Welche der folgenden Näherungen wurde bei Fourier-Transformierten als Streubild **NICHT** gemacht?

A) kinematische Theorie

B) erste Born‘sche Näherung

C) Fernfeld / Fraunhofer Theorie

D) dynamische Theorie

E) kleine Objekte mit geringer Dichte & Absorption

Welches Elektronendichte-Profil erzeugt die stärksten Schichtdickenoszillationen?

A)

B)

C)

D)

Which angular range is optimum for grazing incidence diffraction?

A) Range between 0° and theta-critical
B) Angle as low as possible
C) Just below theta critical
D) Slightly above theta critical