

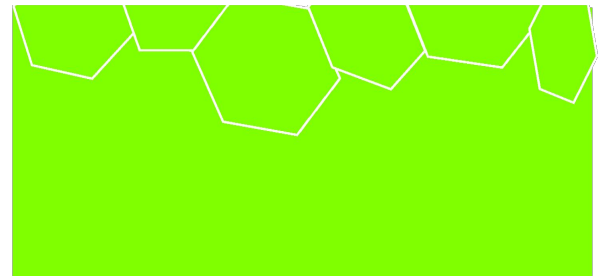
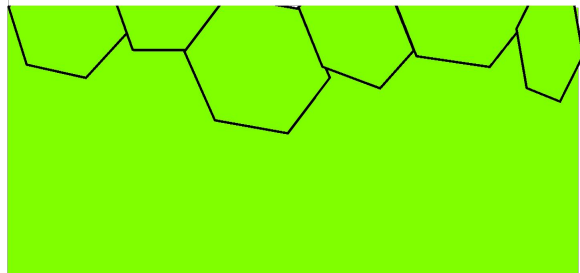
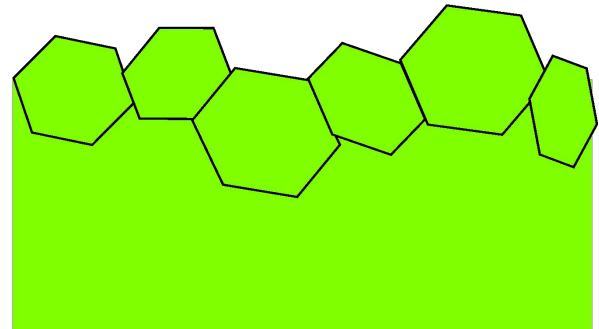
# Исследование структуры

Часть 2

# Оптическая микроскопия

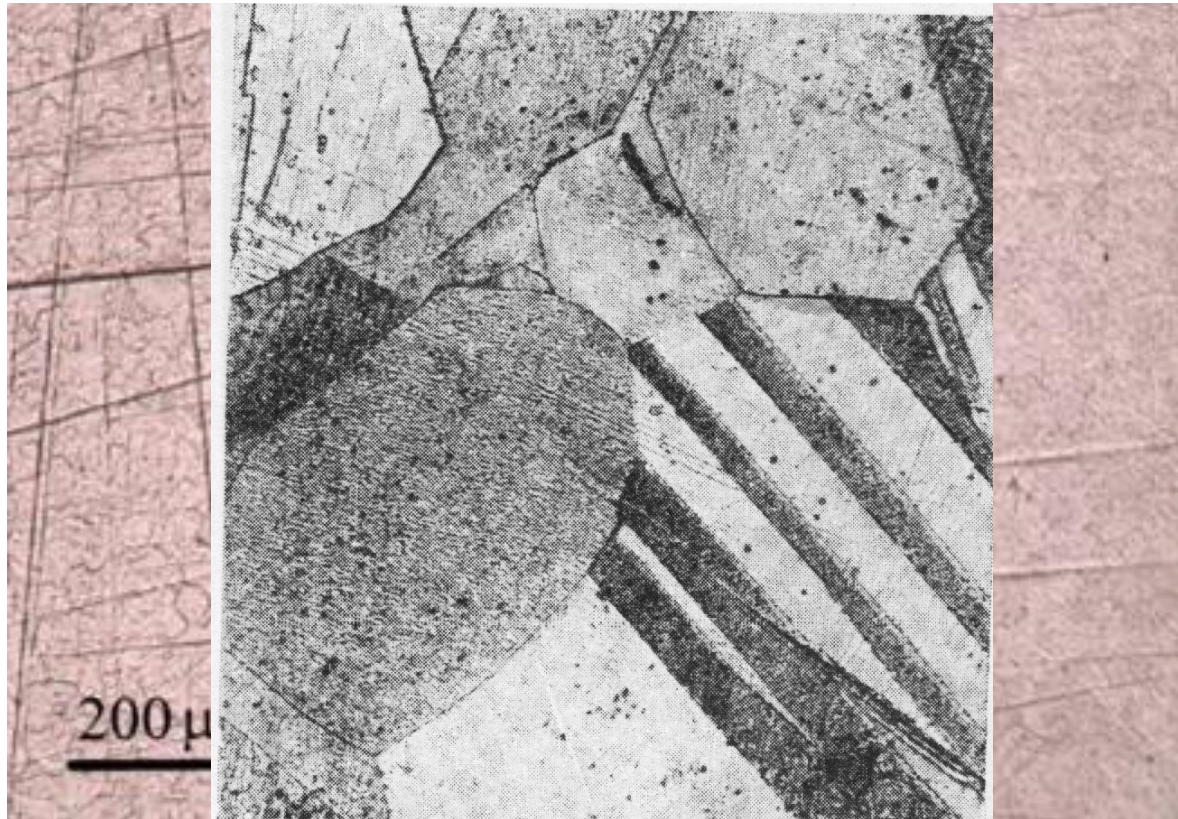
## Light microscopy

Увеличение максимальное - 1000 раз, рабочее 400 -500



# Оптическая микроскопия

## Light microscopy



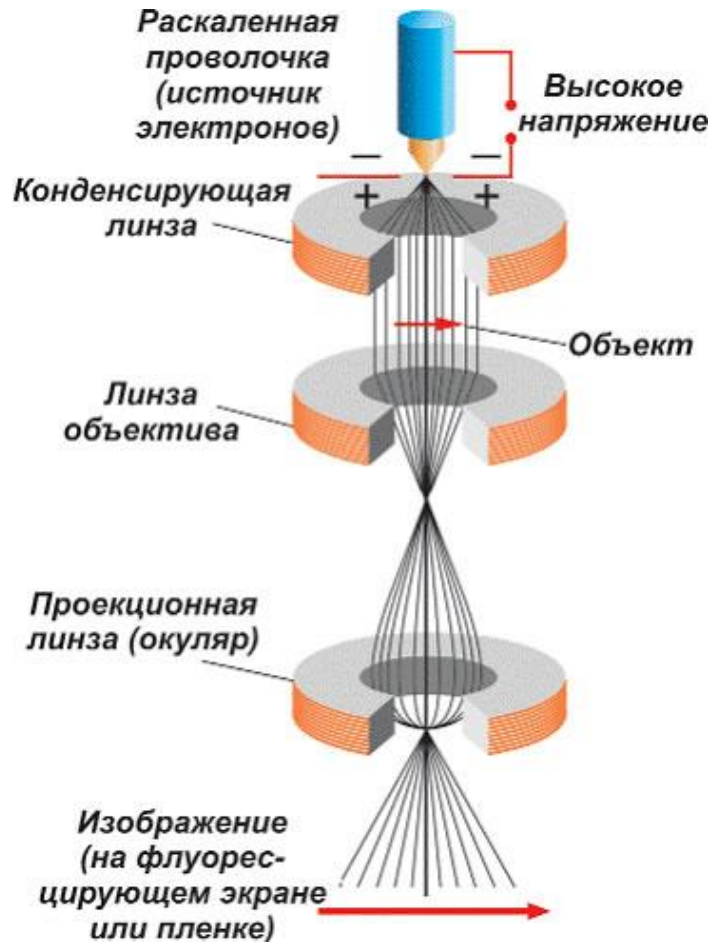
$$d = \frac{1.2\lambda}{n \sin \alpha}$$

$\lambda$  - длина волны

$n$  - коэффициент преломления

# Электронная микроскопия

## Electron Microscopy

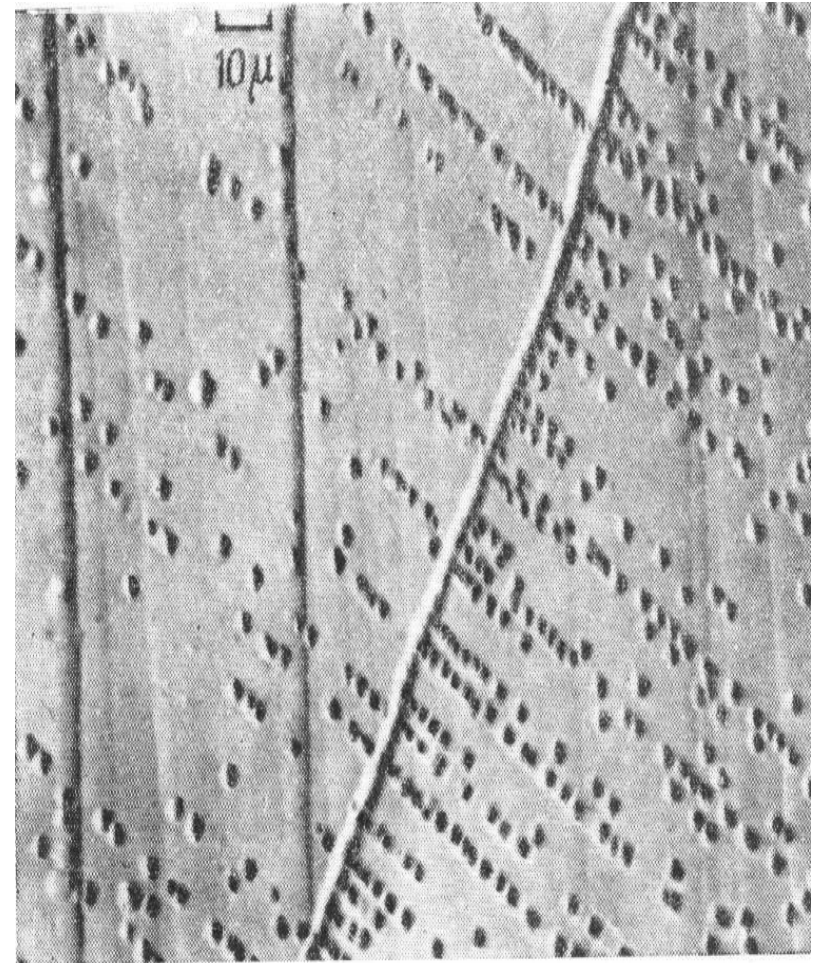
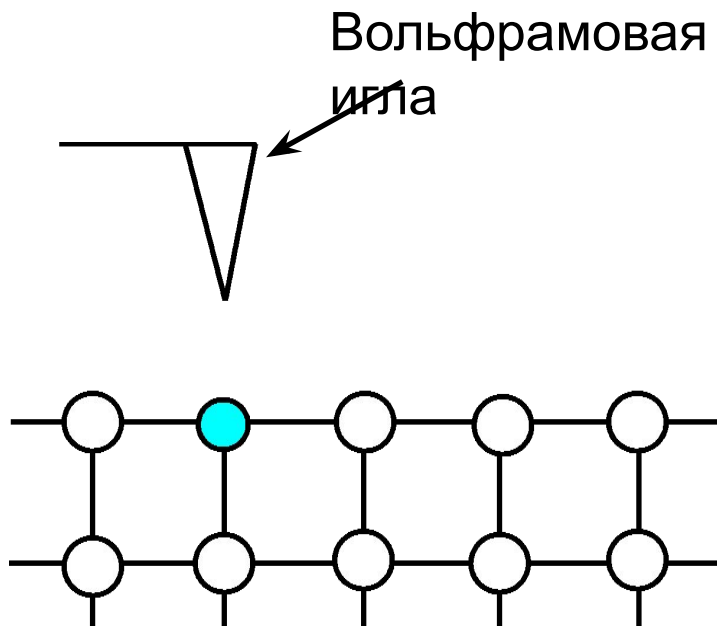


$$d = \frac{1.2\lambda}{n \sin \alpha}$$

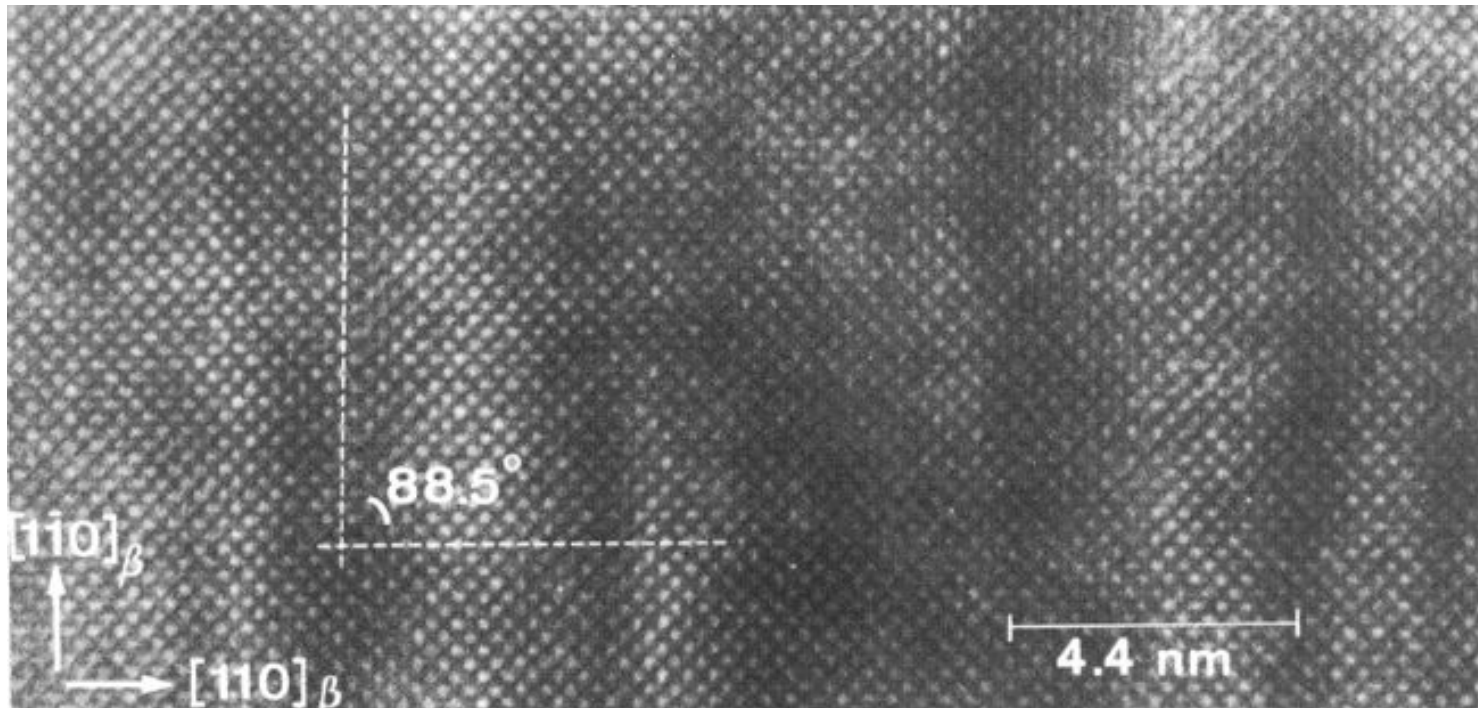
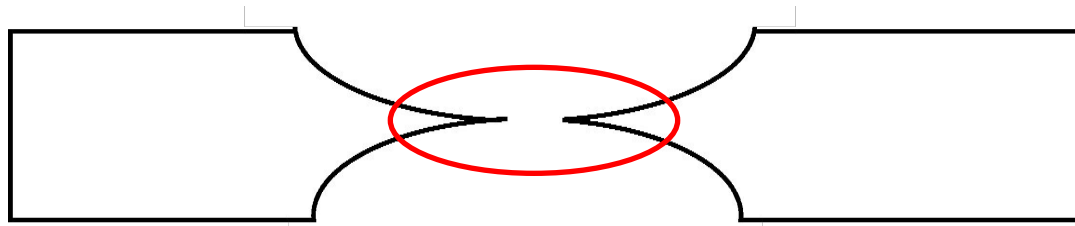
$$\lambda = \frac{h}{\sqrt{2meU}} = \frac{0.037}{\sqrt{U}}$$

# Сканирующая электронная микроскопия (СЭМ)

## Scanning Electron Microscopy (SEM)

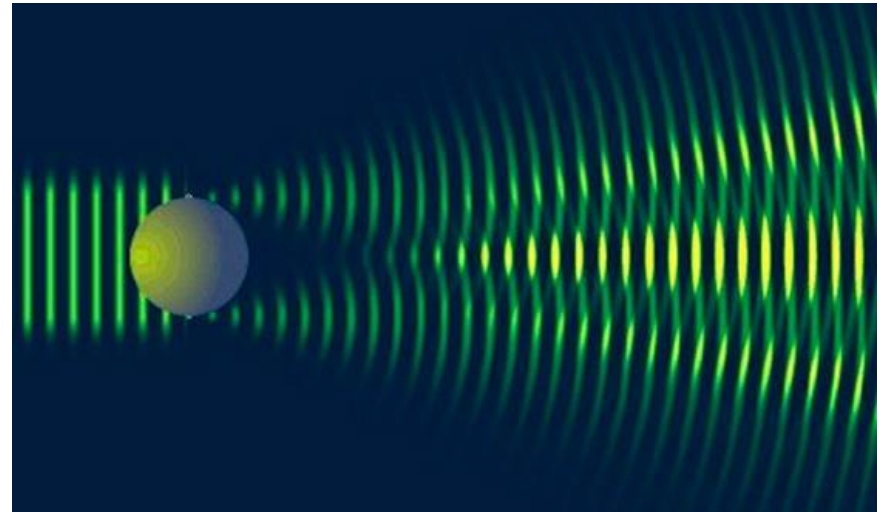
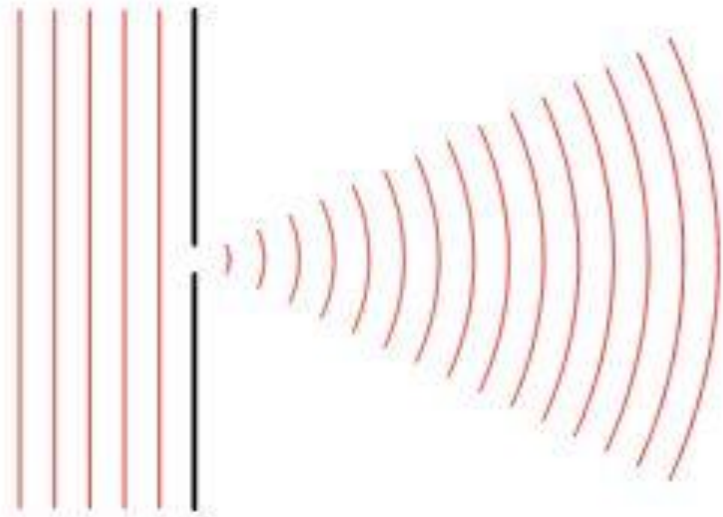


# Просвечивающая электронная микроскопия (ПЭМ) Transmission Electron Microscopy (TEM)



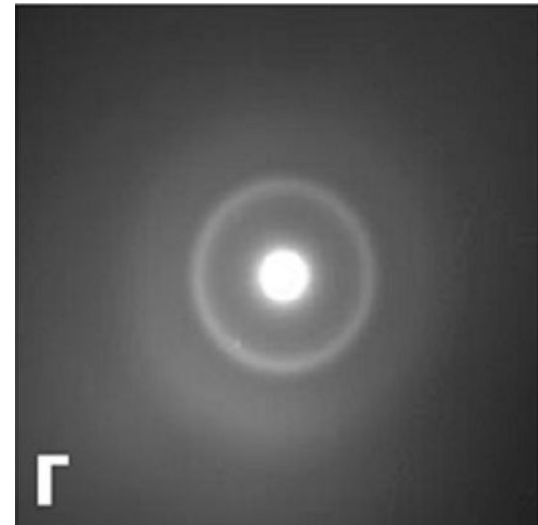
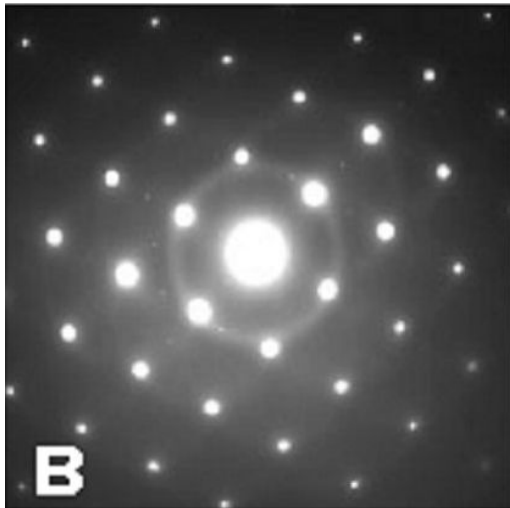
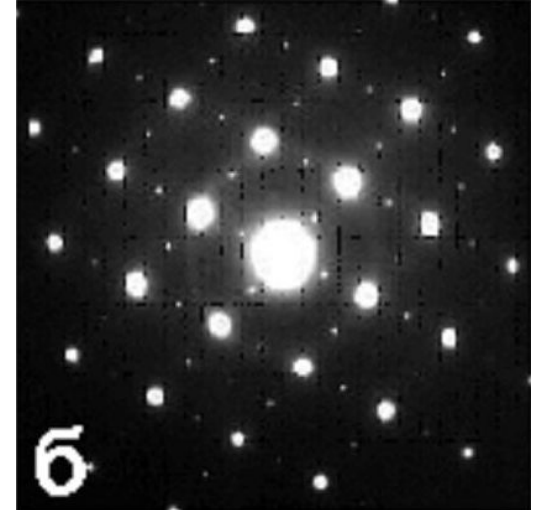
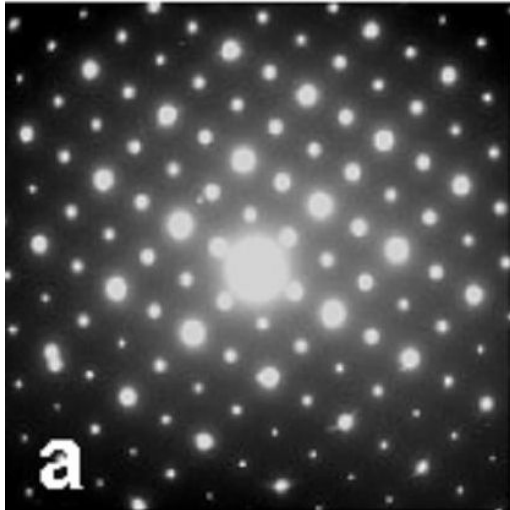
# Дифракция

ослабление -----



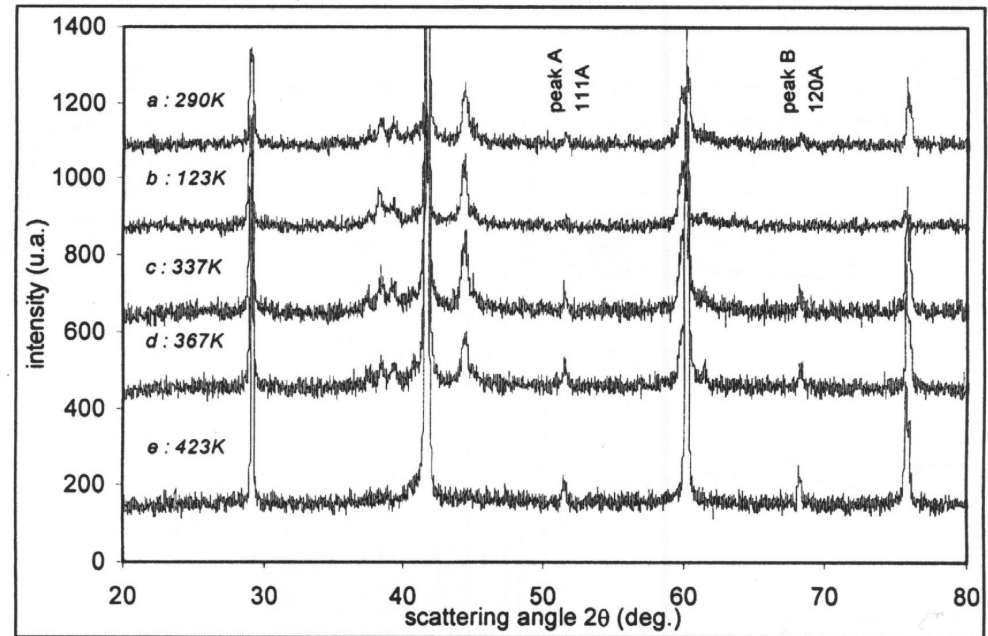
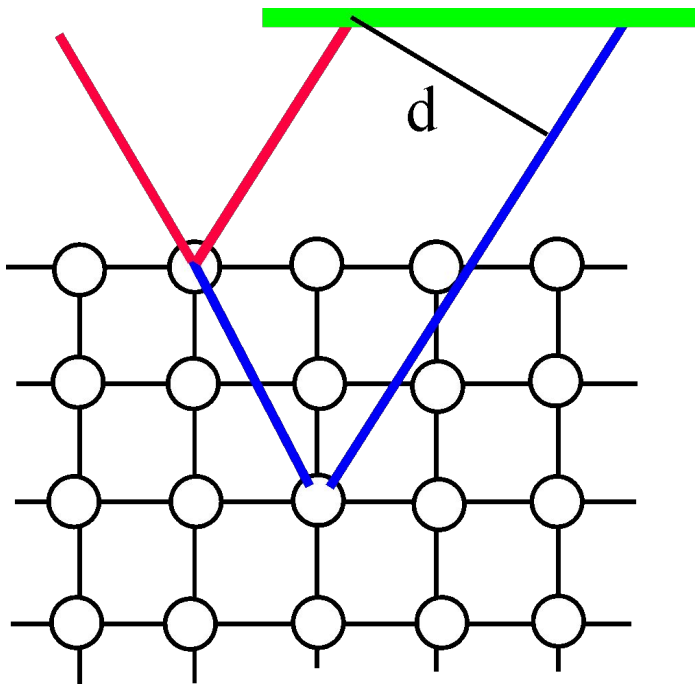
# Дифракция электронов

## Electron Diffraction Analysis



# Дифракция рентгеновских лучей

## X-ray diffraction



$$\lambda = 2d \sin \theta$$