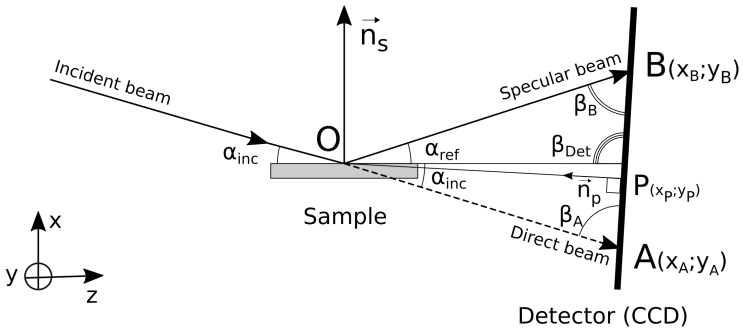
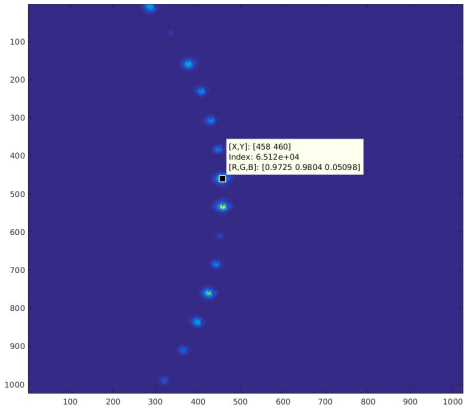
Date: Feb. 14, 2019

Exp. II: “10-deg incidence”

grazing incidence scattering in off-plane geometry (along the lines).



Beam geometry



Scattering pattern

Angles:

Alpha_INC = 10.64 deg; // Real angle of incidence (btw beam and Sample => grazing)
// Alpha_INC =(180 - beta_A - beta_B)/2)

beta_A = 79.83 deg; // Angle between direct beam and CCD

beta_B = 78.89 deg; // Angle between specular beam and CCD

beta_Det = 90.47 deg; // Angle between the Sample and the CCD (Detector plane)
// beta_Det = beta_CCD = 180 - beta_B - Alpha_INC

Distance:

L = 60.45 mm; // Length of OB, distance from grating to the specular spot

Coordinates:

B(x;y) = (458; 460); // Coordinates of specular reflected spot in detector coordinates

P(x;y) = (-437; 460); // Coordinates of “zero”-horizon point in detector coordinates

Detector:

Px_size = 0.013 mm; // Detector pixel size in millimeter, square format

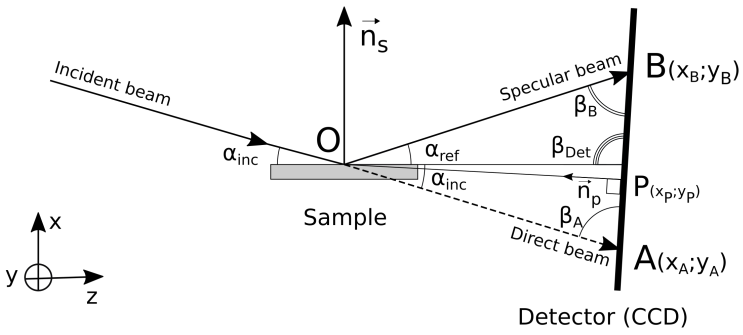
Det_size_px = 1024 px; // Detector size in pixels, square chip

Det_size_mm = 13.31 mm; // Detector size in millimeter, square chip
// Det_size_mm = Det_size_px * 0.013 mm

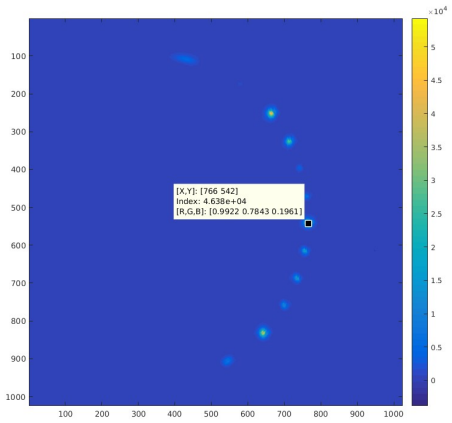
Date: Feb. 14, 2019

Exp. III: “5-deg incidence”

grazing incidence scattering in off-plane geometry (along the lines).



Beam geometry



Scattering pattern

Angles:

Alpha_INC = 5.57 deg; // Real angle of incidence (btw beam and Sample => grazing)
// Alpha_INC =(180 - beta_A - beta_B)/2)

beta_A = 79.83 deg; // Angle between direct beam and CCD

beta_B = 89.03 deg; // Angle between specular beam and CCD

beta_Det = 85.4 deg; // Angle between the Sample and the CCD (Detector plane)
// beta_Det = beta_CCD = 180 - Beta_B - Alpha_INC

Distance:

L = 57.45 mm; // Length of OB, distance from grating to the specular spot

Coordinates:

B(x;y) = (766; 541); // Coordinates of specular reflected spot in detector coordinates

P(x;y) = (692; 541); // Coordinates of “zero”-horizon point in detector coordinates

Detector:

Px_size = 0.013 mm; // Detector pixel size in millimeter, square format

Det_size_px = 1024 px; // Detector size in pixels, square chip

Det_size_mm = 13.31 mm; // Detector size in millimeter, square chip
// Det_size_mm = Det_size_px * 0.013 mm