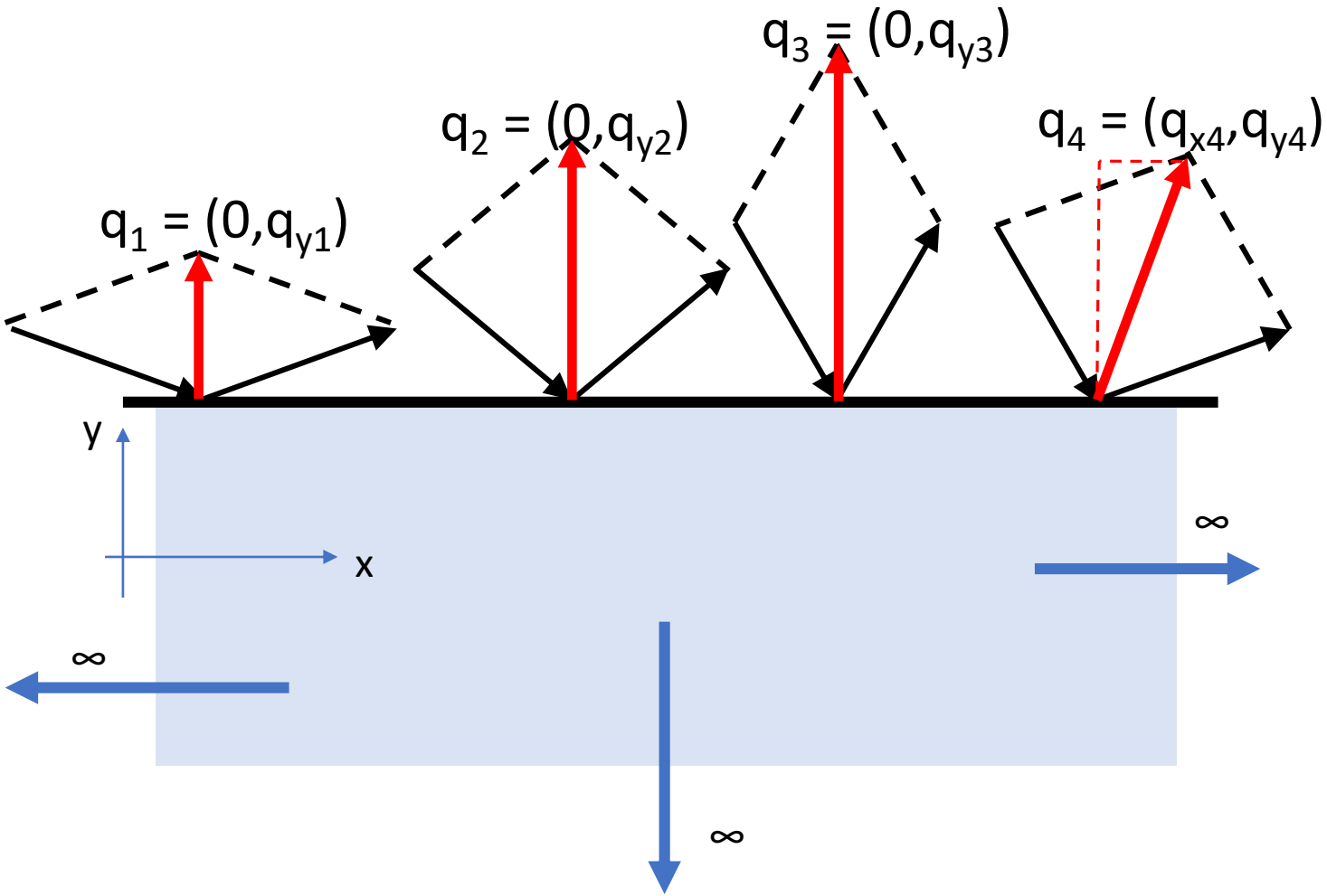
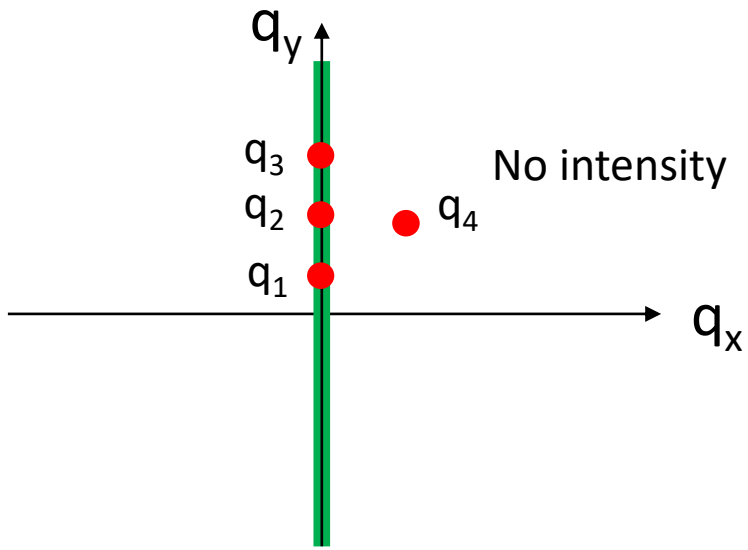
Shape function : $f(x,y) = 1-\Theta(y)$ No dependance on x ; Θ : step function

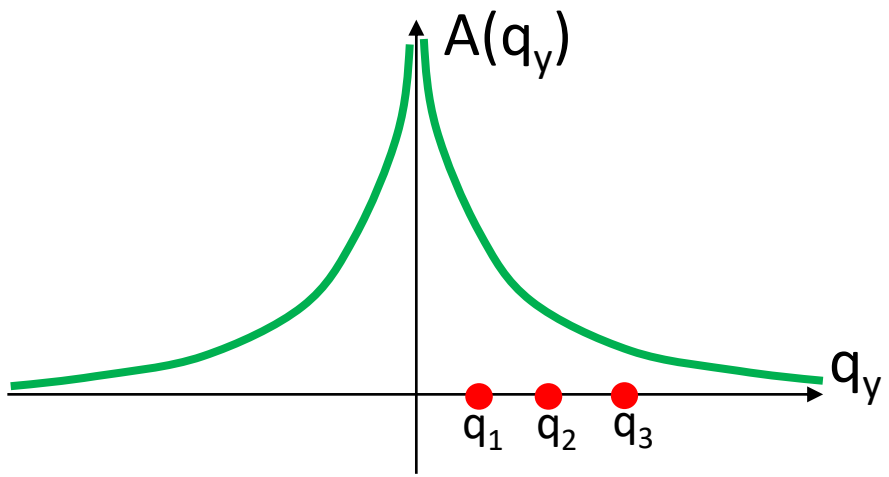
$A(q_x,q_y) = \int\int (1-\Theta(y))\exp[i(q_x x+q_y y)]dxdy =$ Scattering amplitude

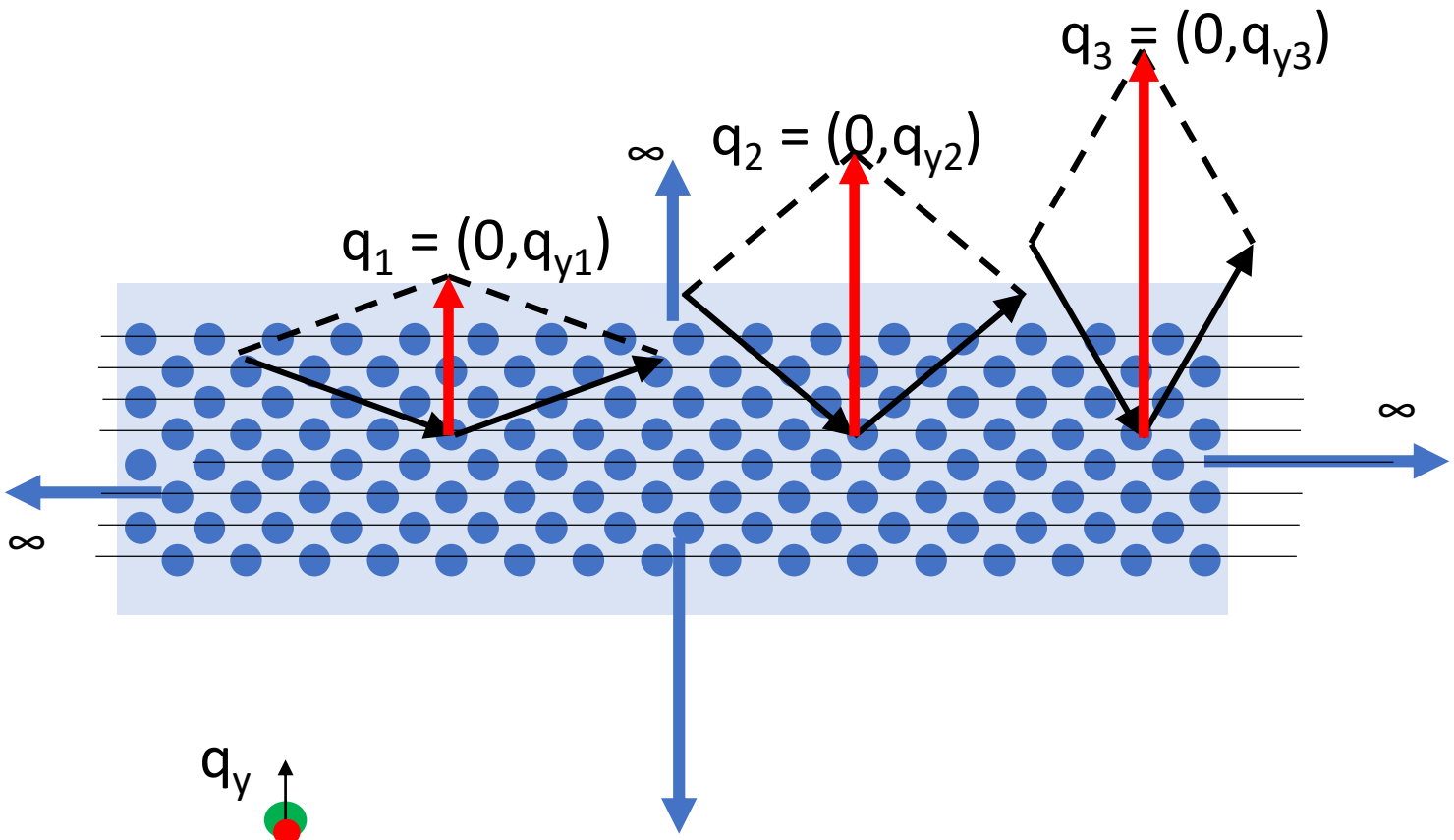
$\int \exp[i(q_x x)dx \int (1-\Theta(y))\exp[i(q_y y)]dx =$

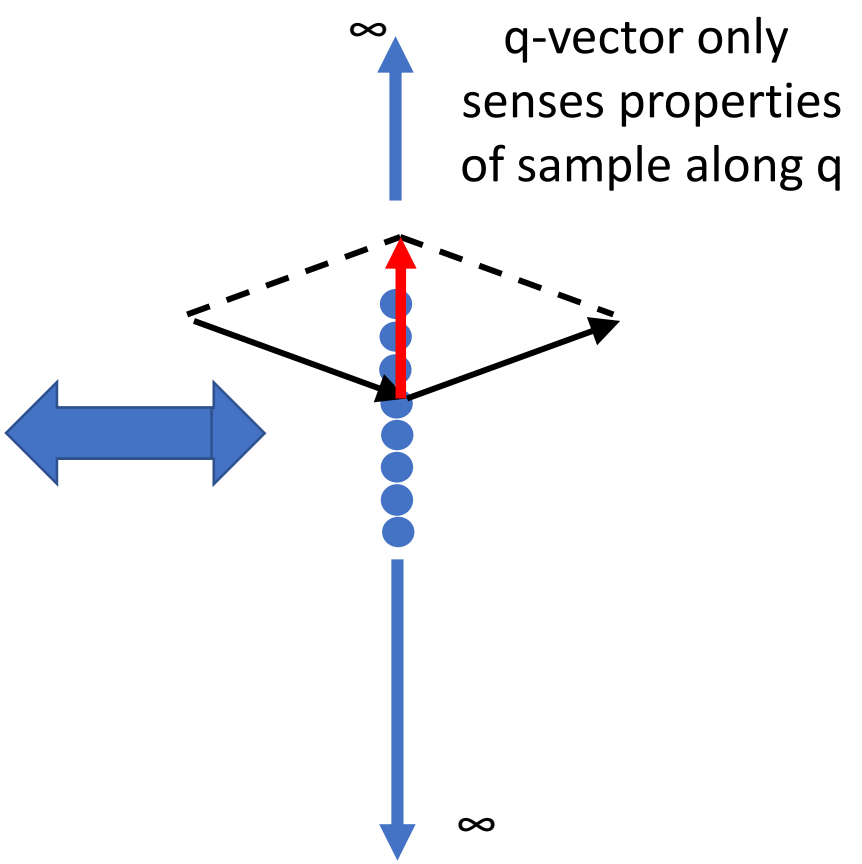
$\delta(x) \int (1-\Theta(y))\exp[i(q_y y)]dx \sim 1/q_y$



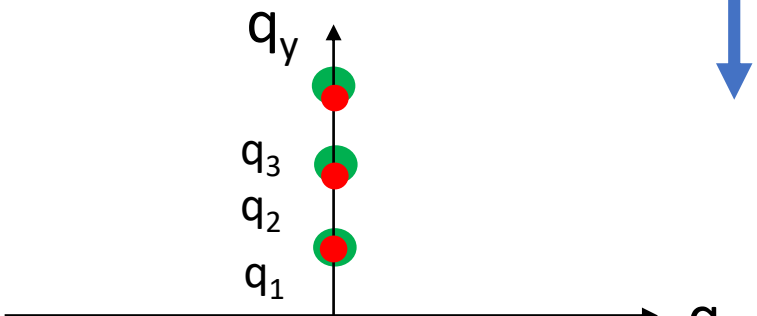




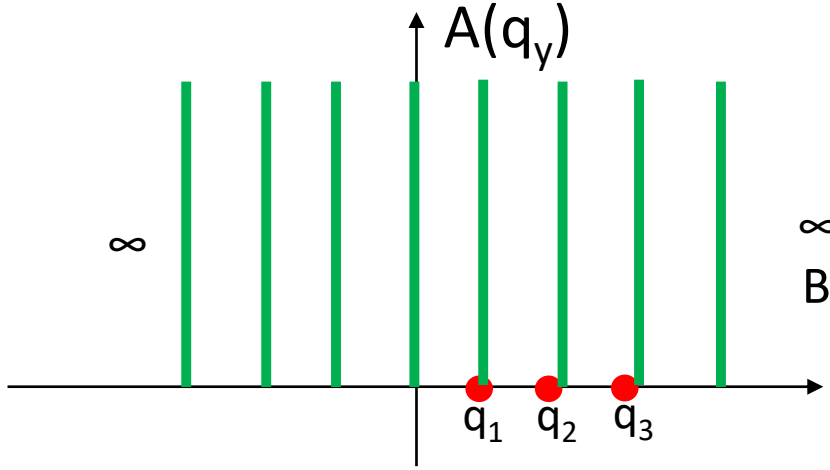




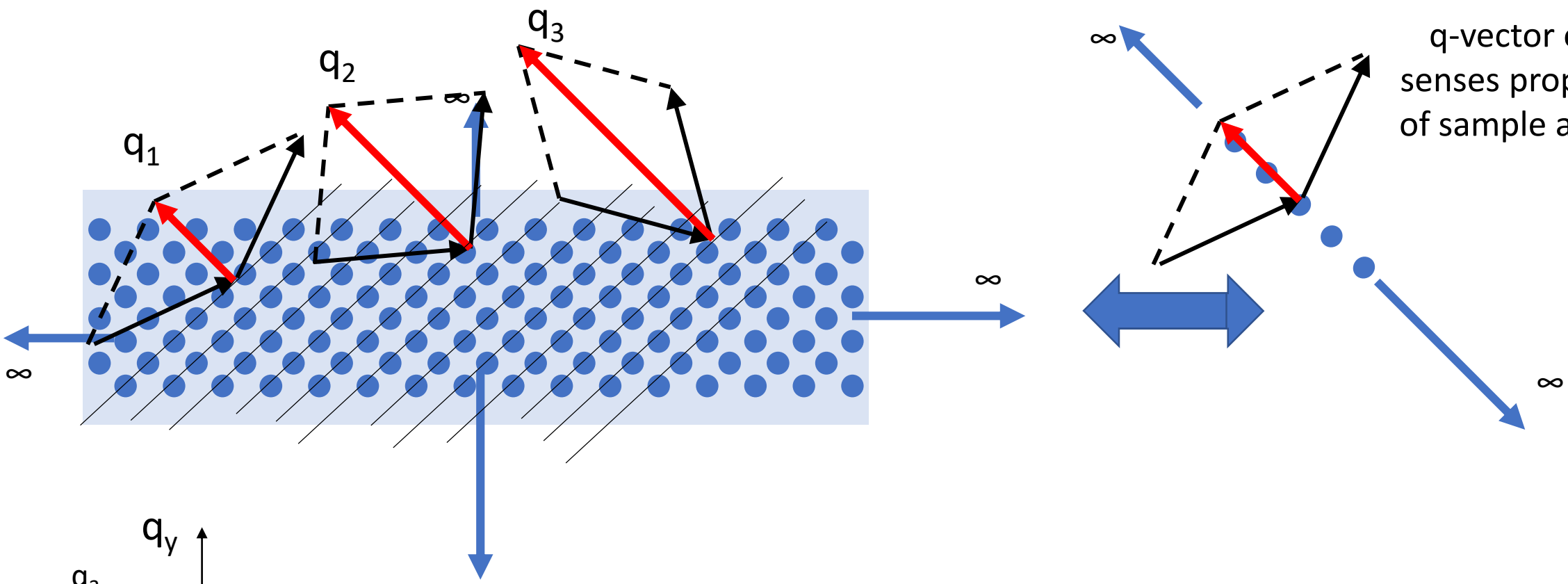
q-vector only senses properties of sample along q



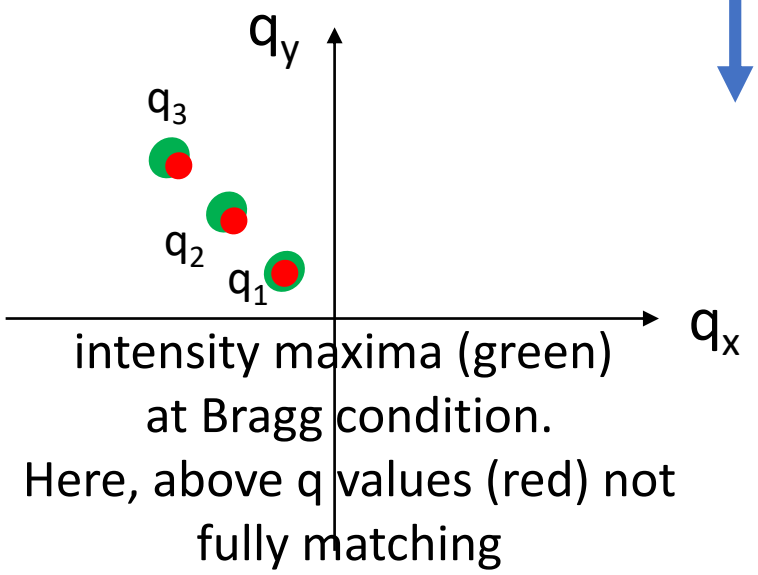
intensity maxima (green) at Bragg condition.
Here, above q values (red) not fully matching



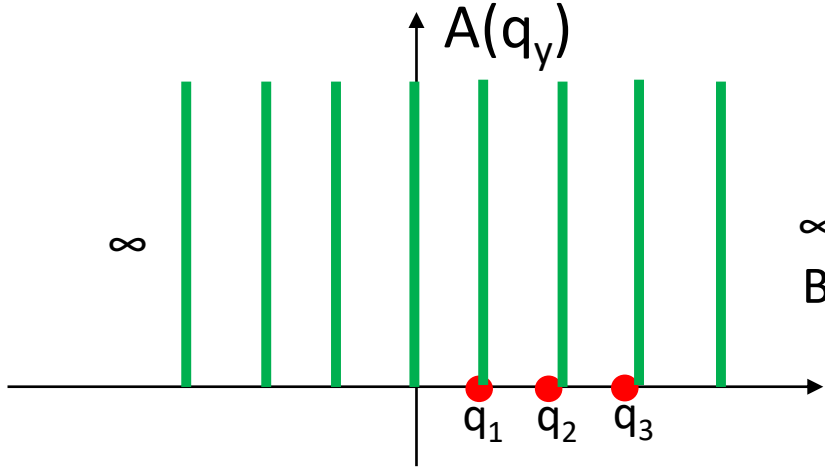
∞
Bragg reflections



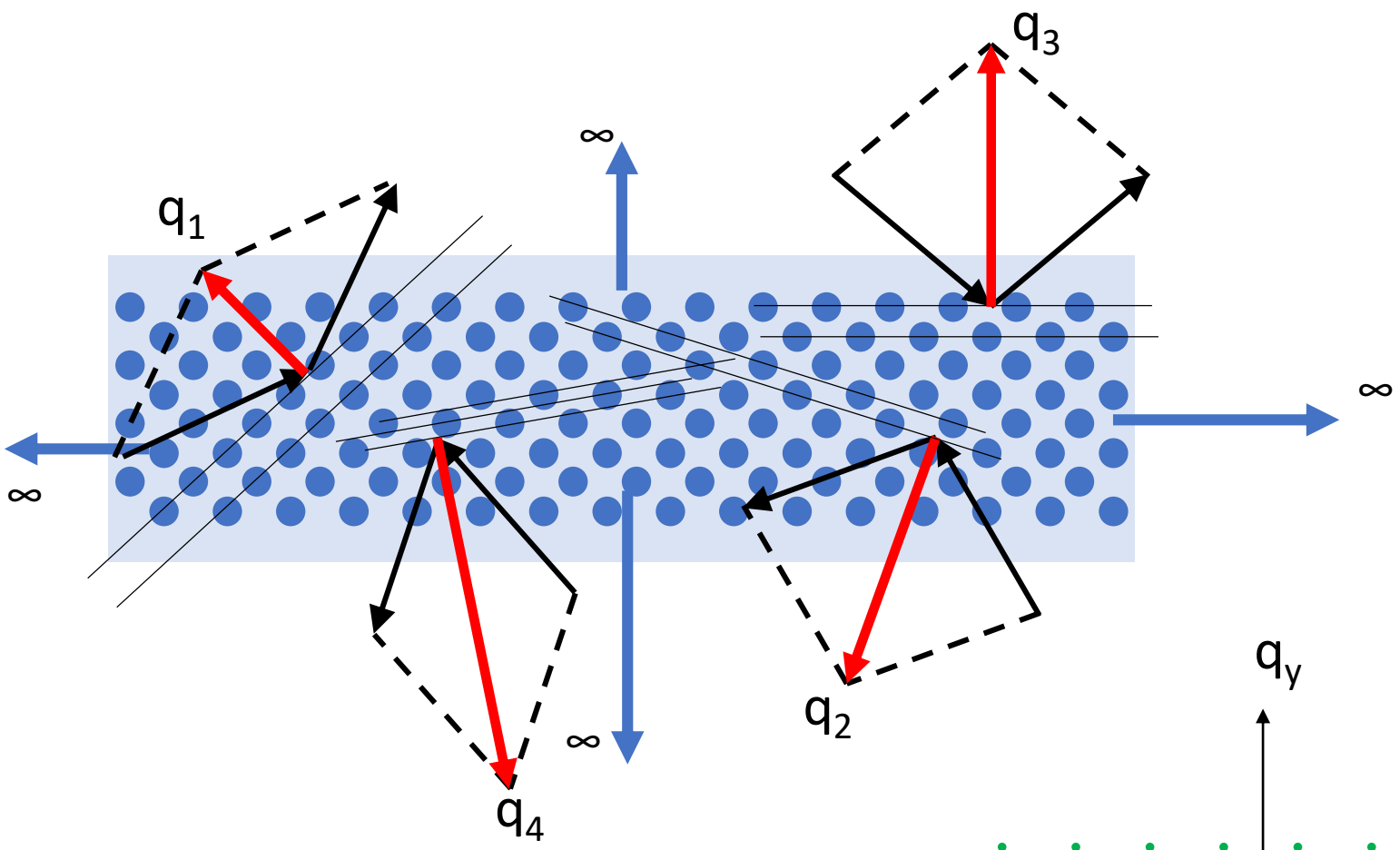
q-vector only senses properties of sample along q



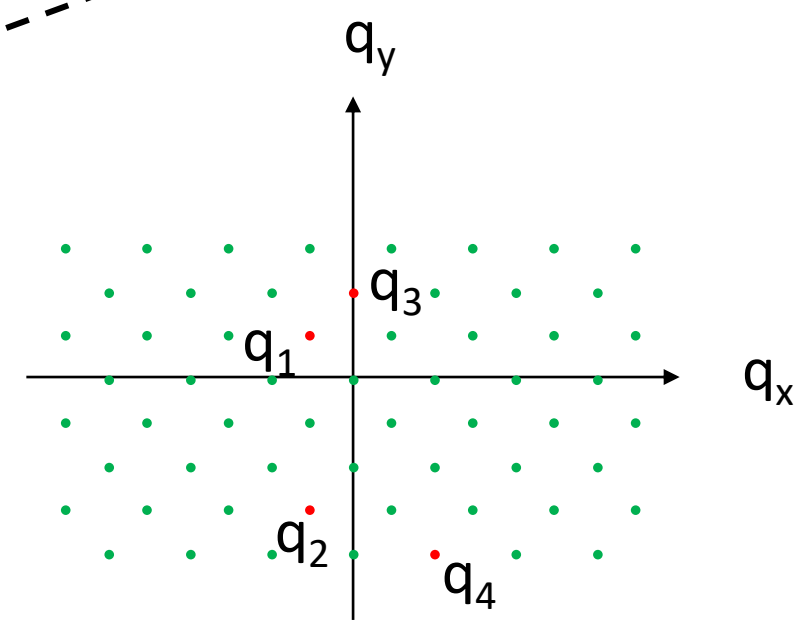
intensity maxima (green) at Bragg condition.
Here, above q values (red) not fully matching

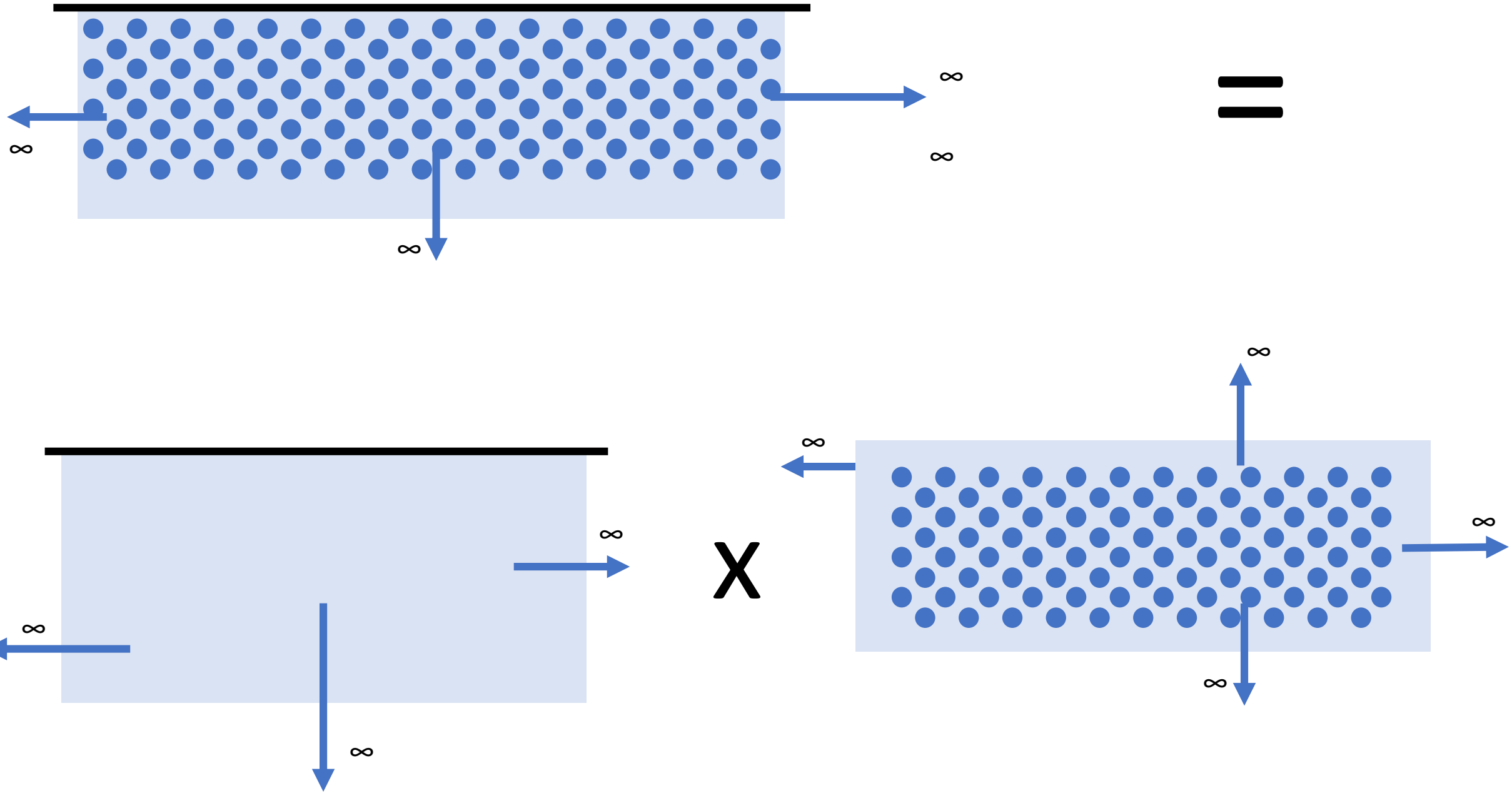


Bragg reflections



all Bragg reflections
when scanning full q-space

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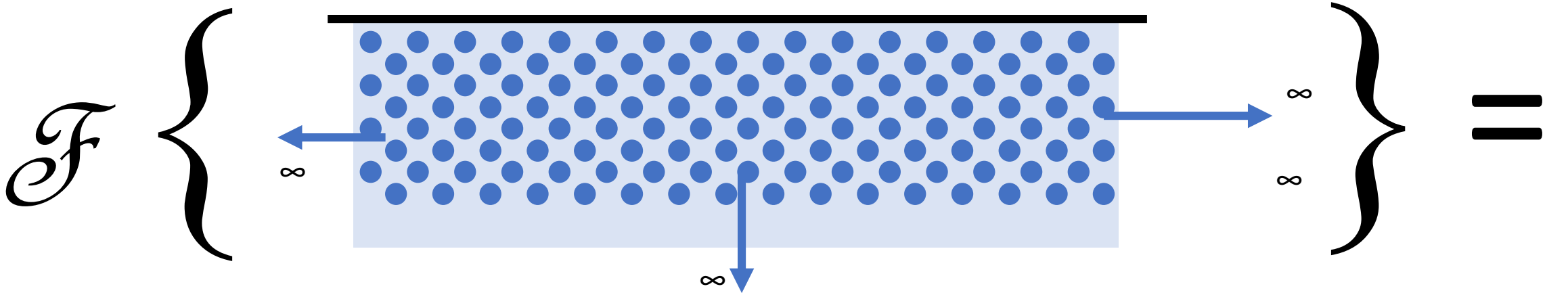
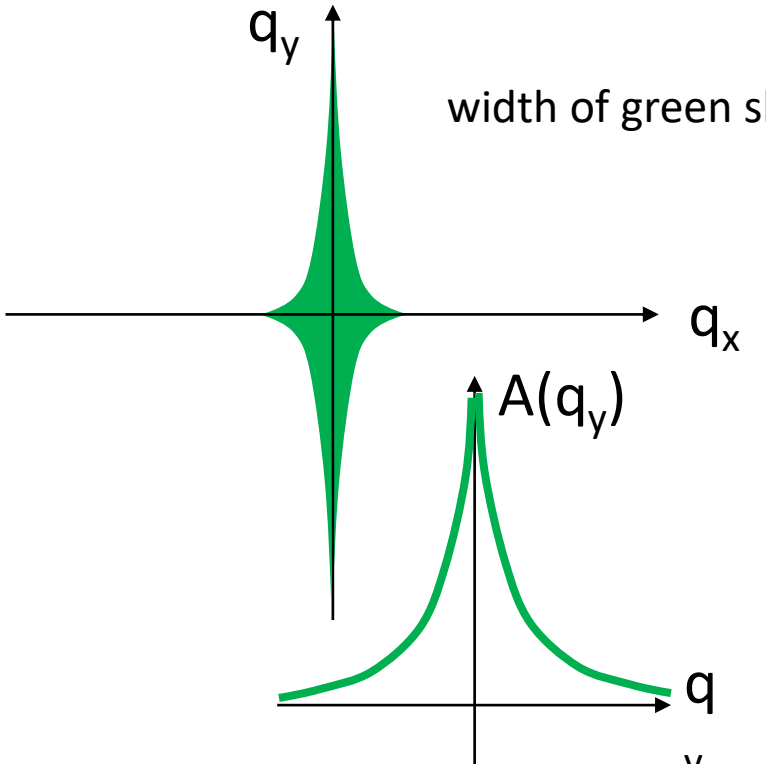
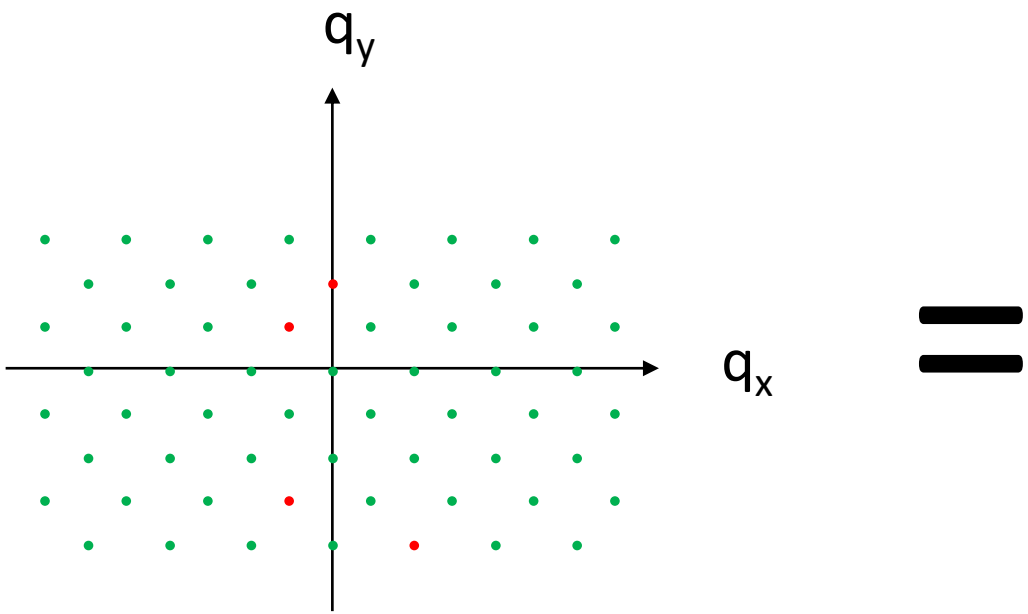
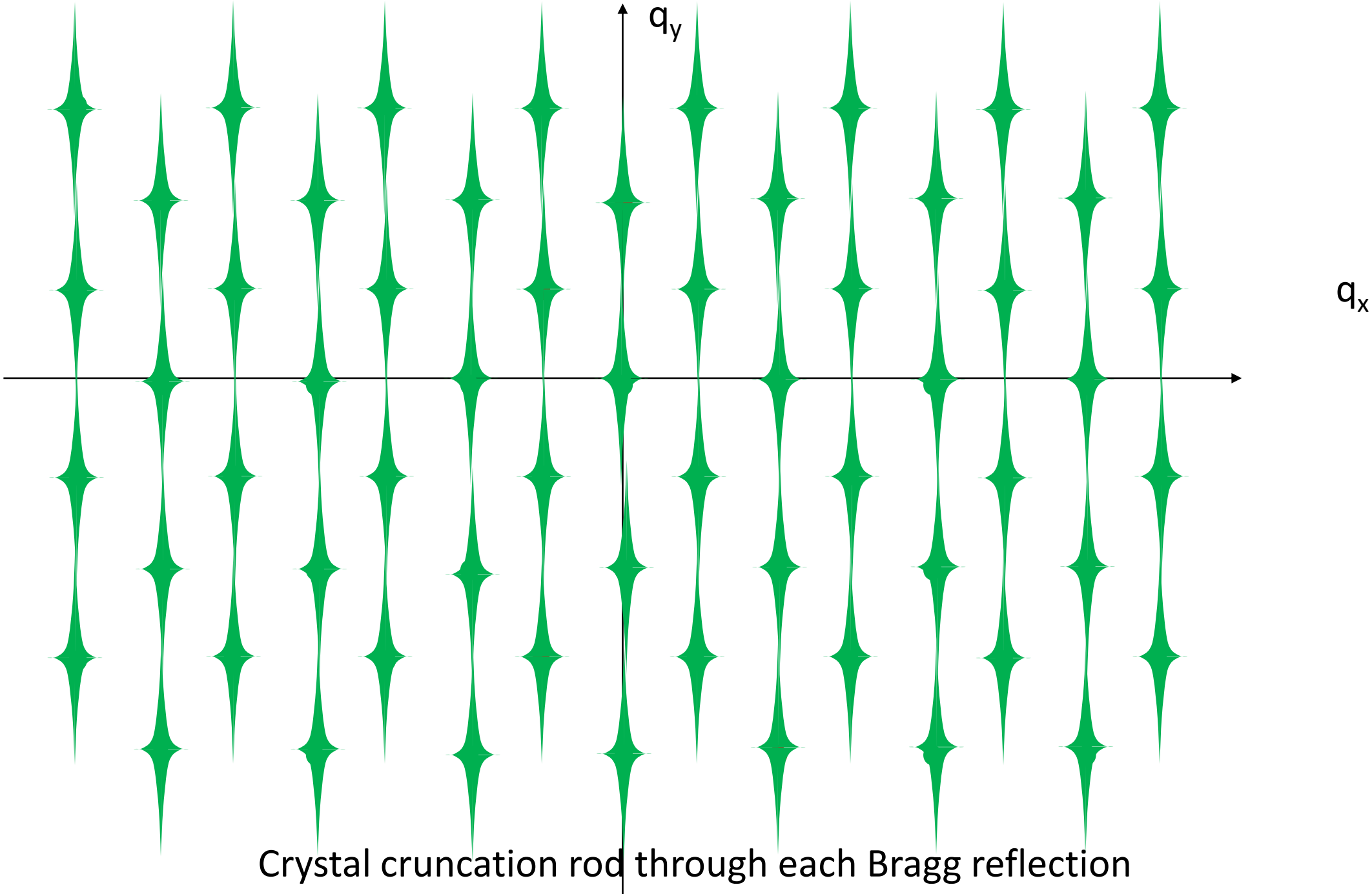


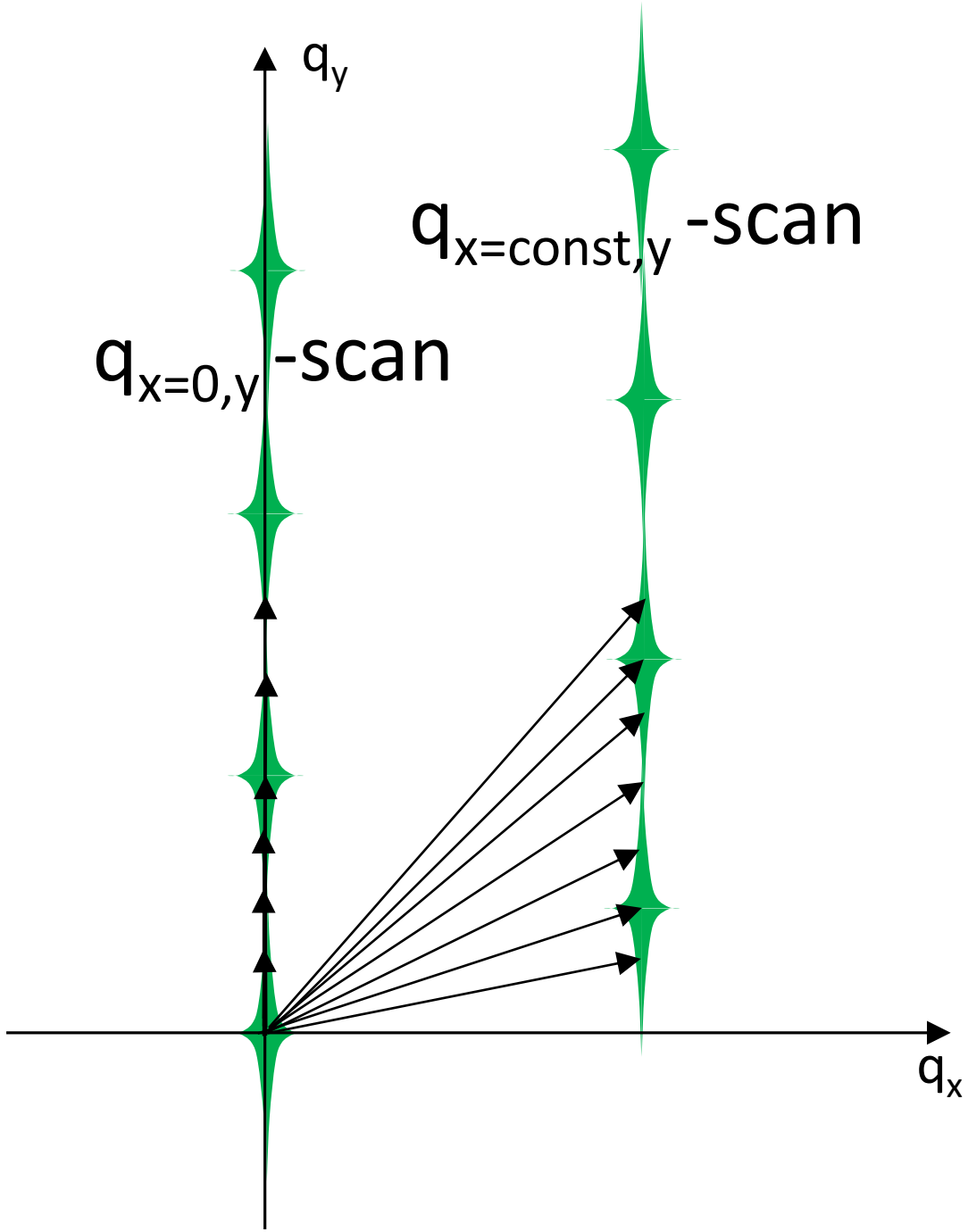


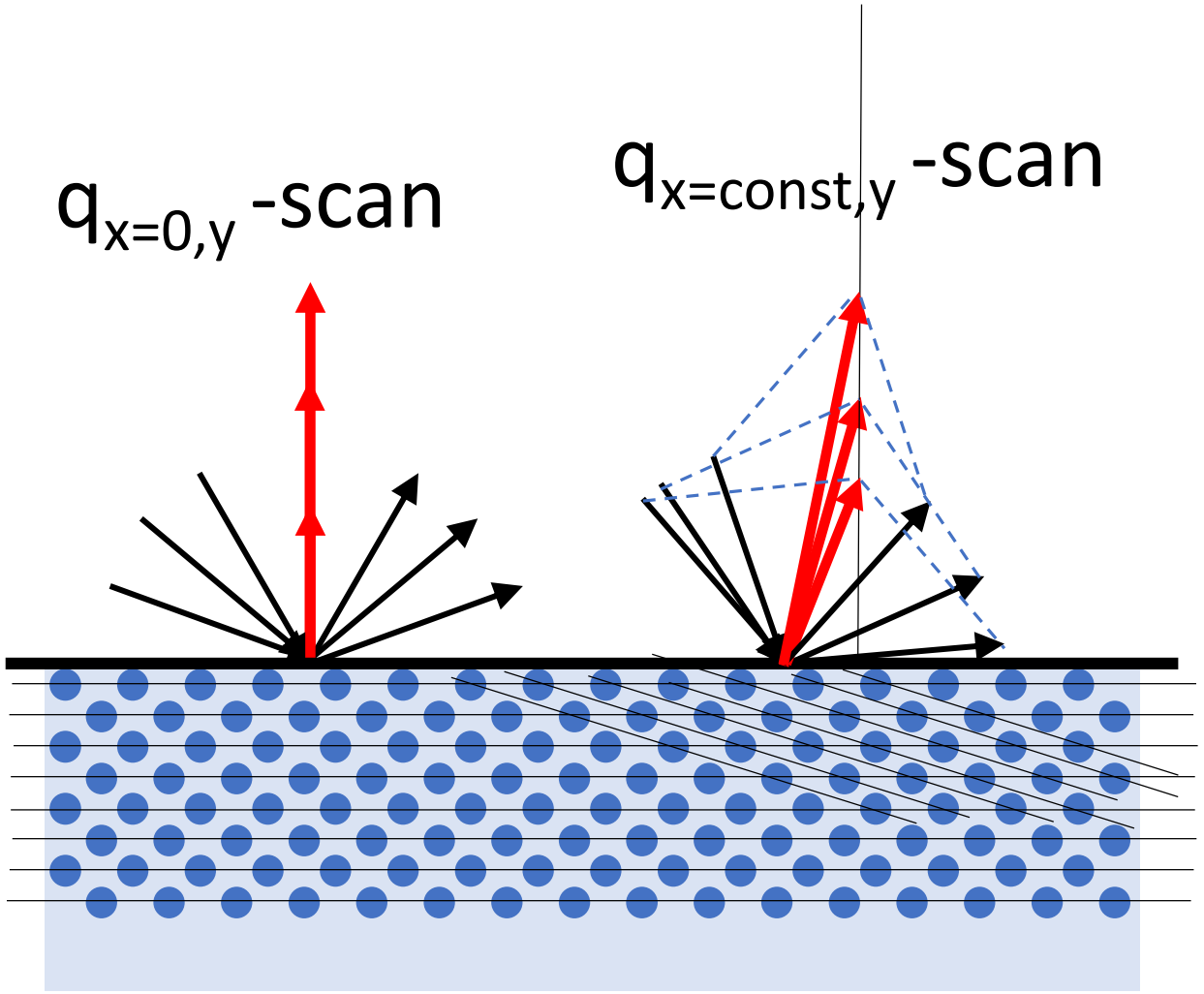
width of green shape = intensity





Crystal cruncation rod through each Bragg reflection


q_y
$q_{x=const,y}$ -scan
$q_{x=0,y}$ -scan
q_x


$q_{x=0,y}$ -scan
$q_{x=const,y}$ -scan