Details of XRR/Parratt\_New

# Function Category: XRR

# Function: Parratt\_New

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# Description

Calculates X-ray reflectivity from a system of multiple layers using Parratt formalism. Here are the description about all the parameters:

### Fixed Parameters

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameters** | **Units** | **Description** | **Default values** |
| x | Å-1 | Array of wave-vector transfer along z-direction i.e Qz |  |
| E | keV | Energy of the X-rays in keV (optional) | 10.0 |
| Minstep | Å | The thickness of each of the layers in | 0.5 |
| rrf |  | ‘True’ for Fresnel normalized reflectivity (R/Rf) and ‘False’ for just reflectivity | ‘True’ |
| qoff | Å | Qz offset to correct the Qz=0 of the instrument (zero angle correction) | 0.0 |
| yscale |  | A scale factor for R or R/Rf | 1.0 |
| Bkg |  | In-coherrent background | 0.0 |

### Single Fitting Parameters

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameters** | **Units** | **Description** | **Default values** |
| qoff | Å | Qz offset to correct the Qz=0 of the instrument (zero angle correction) | 0.0 |
| yscale |  | A scale factor for R or R/Rf | 1.0 |
| Bkg |  | In-coherrent background | 0.0 |

### Multiple Fitting Parameters

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameters** | **Units** | **Description** | **Default values** |
| Layers |  | Layer description | [‘top’, ‘bottom’] |
| d | Å | Thicknesses of each of the layers | [0.0,1.0] |
| rho | el/Å3 | Electron density of each of the layers | [0.0,0.33] |
| beta |  | Absorption coefficient of each of the layers | [0.0,0.0] |
| Sig | Å | Roughness of interfaces between the layers | [0.0,3.0] |