Equation collection

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The following equations are used for "SpecTaroscoPy".

1. Main

$$y = -\frac{a_t}{2}\sqrt{E_t\pi}\,Li_{1/2}\left[-\exp\left(\frac{E - E_{\mathrm{VBM}}}{E_t}\right)\right] + bg$$

$$y = -\frac{a_t}{2}\sqrt{E_t\pi}\,Li_{1/2}\left[-\exp\left(\frac{E - E_{\mathrm{VBM}}}{E_t}\right)\right] + \sum_{n=1}^{N}\frac{a_1}{\sigma\sqrt{2\pi}}\exp\left[-\left(\frac{E - E_1}{2\sigma}\right)^2\right] + bg,\ \mathrm{FWHM} = 2.35\sigma$$

$$y = \frac{a_t}{1 + \exp\left(\dfrac{E - E_{\mathrm{F}}}{k_{\mathrm{B}}T}\right)} \otimes \frac{1}{\sigma\sqrt{2\pi}}\exp\left[-\left(\frac{E}{2\sigma}\right)^2\right] + bg,\ \mathrm{FWHM} = 2.35\sigma$$

$$y = \frac{ax + b}{1 + \exp\left(\dfrac{-E + E_{\mathrm{F}}}{k_{\mathrm{B}}T}\right)} \otimes \frac{1}{\sigma\sqrt{2\pi}}\exp\left[-\left(\frac{E}{2\sigma}\right)^2\right] + bg$$

$$y = \frac{1}{1 + \exp\left(1\dfrac{E - E_{\mathrm{F}}}{k_B T}\right)} \otimes s(x)$$

$$y = a_1\exp\left[-\left(\frac{E - E_1}{2\sigma_1}\right)^2\right],\ \mathrm{FWHM}_1 = 2.35\sigma_1$$

$$y = \sum_{n=1}^{N} a_n\exp\left[-\frac{(E - E_n)^2}{2\sigma_n^2}\right] + bg, \quad \mathrm{FWHM}_n = 2.35\,\sigma_n$$

$$\hat{o}^{k+1}(x) = \hat{o}^k(x) + r[\hat{o}^k(x)][\hat{o}^k(x) - s(x)\otimes\hat{o}^k(x)]$$

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$$r[\hat{o}^k(x)] = r_0 \left[1 - \frac{2}{b-a} \left| \hat{o}^k(x) - \frac{a+b}{2} \right| \right]$$

$$\hat{o}^{k+1}(x) = \hat{o}^k(x) \cdot i(x) / [s(x) \otimes \hat{o}^k(x)]$$