

$$\frac{\mathrm{d}R_{\mathcal{N}}}{\mathrm{d}E_{\mathrm{R}}} = N_{\mathcal{N}} \frac{\rho_{\odot}}{m_{\chi}} \frac{1}{32\pi} \frac{m_{\mathcal{N}}}{m_{\chi}^2 m_N^2} \sum_{i,j=1}^{12} \sum_{N,N'=p,n} \mathbf{c}_i^N \mathbf{c}_j^{N'} \int_{v_{\min}(E_{\mathrm{R}})}^{v_{\mathrm{esc}}} \mathrm{d}^3v \frac{1}{v} f_{\oplus}(v) F_{i,j}^{(N,N')}(v, q^2)$$