$$\sigma = \frac{S(E)}{E} e^{-(E_G/E)^{1/2}}$$

$$\langle \sigma v \rangle = 8.198 \cdot 10^{-14} A^{-1/2} T_9^{-3/2} \int \sigma_b E_G e^{\left(-11.605 \frac{E_G}{T_9}\right)} dE_{Gm}$$

$$= 8.198 \cdot 10^{-14} A^{-1/2} T_9^{-3/2} \int \frac{S(E)}{E} e^{-(E_G/E)^{1/2}} E_G e^{\left(-11.605 \frac{E_G}{T_9}\right)} dE_{Gm}$$

$$U = 11.605 \frac{E_G}{T_9} \qquad E_G = \frac{T_9 u}{11.605}$$

$$= 8.198 \cdot 10^{-14} A^{-1/2} T_9^{-3/2} \int S\left(\frac{T_9 u}{11.605}\right) e^{-\left(\frac{E_G - 11.605}{T_9 u}\right)} e^{-u} \frac{T_9 du}{11.605}$$

$$= 8.198 \cdot 10^{-14} A^{-1/2} T_9^{-3/2} \frac{T_9}{11.605} \int S\left(\frac{T_9 u}{11.605}\right) e^{-\left(\frac{E_G - 11.605}{T_9 u}\right)} e^{-u} du$$

$$= 8.198 \cdot 10^{-14} A^{-1/2} T_9^{-3/2} \frac{T_9}{11.605} \int f(u) \cdot e^{-u} du$$

$$f(u) = S\left(\frac{T_9 u}{11.605}\right) e^{-\left(\frac{E_G - 11.605}{T_9 u}\right)}$$

$$= 8.198 \cdot 10^{-14} A^{-1/2} T_9^{-3/2} \frac{T_9}{11.605} \cdot \sum_{i=1}^{6} w_i v_i$$