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Выделим условно четыре периода развития взрыва: период испарения и ионизации вещества –
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$$\frac{dN}{dv_0} = N\left[\frac{m}{2\pi kT}\right]^{3/2} v^2 \exp\left(-\frac{mv^2}{2kT}\right) \qquad (2.13)$$

clear :

$$dNdv_0(m, v2, T) := 4\cdot\pi\cdot N_i\cdot\left(\frac{m}{2\cdot\pi\cdot k\cdot T}\right)^{\frac{3}{2}}\cdot v2\cdot\exp\left(-\frac{m\cdot v2}{2\cdot k\cdot T}\right)$$

$$(m, v2, T) \rightarrow \pi N_i \sqrt{2}\left(\frac{m}{\pi k T}\right)^{3/2} v2\, e^{-\frac{1}{2}\frac{v2\, m}{kT}} \qquad \textbf{(1)}$$

R_i

$$n_i := \frac{N_i}{\int_0^{R_i} 4\cdot\pi\cdot r^2\, dr}$$

$$\frac{3}{4}\frac{N_i}{\pi R_i^3} \qquad \textbf{(2)}$$

:

R $n_i\cdot\int_0^R 4\cdot\pi\cdot r^2\, dr$

$$\frac{N_i R^3}{R_i^3} \qquad \textbf{(3)}$$

$$N(v_R) := \int_0^{v_R} dNdv_0(m, v, T)\, dv$$

$$v_R \rightarrow \int_0^{v_R} dNdv_0(m, v, T)\ \mathrm{d}v \tag{4}$$

$$solve\left(n_i \cdot 4 \cdot \pi \cdot r^2 = dNdv_0(m, v2, T)\right)$$

$$\{N_i = 0, R_i = R_i, T = T, k = k, m = m, r = r, v2 = v2\},\ \{N_i = N_i, R_i = R_i, T = T, k = k, m = 0, r = 0, v2 = v2\},\ \left\{N_i = N_i, R_i = R_i, T = T, k = k, m = -\frac{2\ k\ T\ RootOf\left(16\ \_Z^3\ \left(e^{-Z}\right)^2\ R_i^6 + 9\ v2\ \pi\ r^4\right)}{v2}, r = r, v2 = v2\right\} \tag{5}$$

$$solve\left(n_i \cdot 4 \cdot \pi \cdot r^2 = dNdv_0(m, v2, T), v2\right)$$

$$-\frac{2\ \mathrm{LambertW}\left(-\frac{3}{4}\ \frac{r^2\ \pi\ \sqrt{2}}{\sqrt{\frac{m\ \pi}{k\ T}}\ R_i^3}\right)\ k\ T}{m} \tag{6}$$