$$\frac{1}{c}\frac{\partial I(r,\nu,\Omega,t)}{\partial t}+\Omega\cdot\nabla I(r,\nu,\Omega,t)=-\sigma(\nu)I(r,\nu,\Omega,t)+\sigma(\nu)B(\nu,T), \quad (1)$$

$$\frac{1}{c}\frac{\partial E_m}{\partial t}=\int\int d\nu d\Omega\sigma(\nu)I(r,\nu,\Omega,t)-\int\int d\nu d\Omega\sigma(\nu)B(\nu,T). \quad (2)$$

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c
r
ν
Ω
σ
t
$I(r,\nu,\Omega,t)$
$B(\nu,T)$
E_m
T

$$B(\nu,T)=\frac{2h}{c^3}\frac{\nu^3}{(e^{\frac{h\nu}{kT}}-1)}, \quad (3)$$

T
h
k
??
??
????

$$\Delta t=\frac{\rho c_v}{a4T^3c\sigma_p}. \quad (4)$$

ρ
c_v
a
σ_p
??
??

$$B(\nu,T)=\frac{1}{4\pi}b(\nu,T)E_r. \quad (5)$$

$$E_r=aT^4 \quad (6)$$

$$b(\nu,T)=\frac{h}{kT}\frac{15}{\pi^4}\frac{\frac{h\nu}{kT}^3}{(e^{\frac{h\nu}{kT}}-1)} \quad (7)$$

$$a=\frac{8\pi^5k^4}{15c^3h^3} \quad (8)$$

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$$\frac{1}{c}\frac{\partial I(r,\nu,\Omega,t)}{\partial t}+\Omega\cdot\nabla I(r,\nu,\Omega,t)=-\sigma(\nu)I(r,\nu,\Omega,t)+\frac{1}{4\pi}\sigma(\nu)b(\nu,T)E_r \quad (9)$$

$$\frac{1}{c}\frac{\partial E_m}{\partial t}=\int\int d\nu d\Omega\sigma(\nu)I(r,\nu,\Omega,t)-\frac{1}{4\pi}\int\int d\nu d\Omega\sigma(\nu)b(\nu,T)E_r. \quad (10)$$

$$\sigma_p=\frac{\int_0^\infty d\nu B(\nu,T)\sigma(\nu)}{\int_0^\infty d\nu B(\nu,T)}. \quad (11)$$

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$$\sigma_p=\int_0^\infty d\nu b(\nu,T)\sigma(\nu). \quad (12)$$

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$\int\int dvd\Omega\sigma(v)B(v,T)$
??

$$\frac{1}{c}\frac{\partial E_m}{\partial t}=\int\int d\nu d\Omega\sigma(\nu)I(r,\nu,\Omega,t)-\sigma_pE_r \quad (13)$$

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$$\frac{\partial E_m}{\partial t}=\rho c_v\frac{\partial T}{\partial t}. \quad (14)$$

ρ
c_v
??
??

$$\frac{\rho c_v}{c}\frac{\partial T}{\partial t}=\int\int d\nu d\Omega\sigma(\nu)I(r,\nu,\Omega,t)-\sigma_paT^4$$