$$\frac{∂n}{∂t}=D∇^{2}n-∇.\left(\frac{σ}{1+c}.n∇c\right)-∇.\left(ρn∇f\right)$$

$$\frac{∂f}{∂t}=βn-γnf$$

$$\frac{∂c}{∂t}=-ηnc$$