Ly α Line Transfer in an Extremely Thick, Static, Dustless Medium

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We have developed a Monte carlo code which can efficiently calculate the Ly α line transfer in extremely thick, static and neutral envelopes of starbursting galaxies. To overcome the inherent inefficieny of the Monte Carlo method in dealing with a huge number of local resonance scatterings in a very thick medium, we devised an accelerated scheme in which we skip local resonance scatterings and assign a spatial distance the photon travels during these resonance scatterings. The computational speed is enhanced by more than two orders of magnitude with this scheme for the case of a=4.71 $\times$ 10^{-4} and $\tau_o > 10^8$, where τ_o is the optical depth of the line center. We present the emergent profile and polarization, which are compared with the previous works.