Fokker Planck Approach to Electron Acceleration by Intense Lasers in the presence of background Stochastic Fields VIKRAM SAGAR, SUDIP SENGUPTA, PREDHIMAN KAW, Institute for Plasma Research — Acceleration of plasma electrons subjected to an intense laser field in the presence of background stochastic fields has been observed in simulations as well as in experiments. The accelerated electrons are found to have a strong directionality along the wave vector of the laser, with peak energy gain significantly greater than the corresponding ponderomotive energy of the laser. In the present work, this acceleration scheme has been studied deriving the corresponding Fokker-Planck equation and using it to obtain the distribution function of accelerated electrons. The dependence of the effective temperature (T) of the distribution is studied as a function of time of interaction (t), and laser intensity (I), which is given by $T \propto (t)^{\alpha}(I)^{\beta}$.

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