$u =$
$k_E \ell$
k_E
ℓ
ρ_b
$E =$
$\rho_b k_E$
$q =$
$\rho_b u =$
$E \ell$
??
??
??
??
x
x
??
$1/k_D$
$1/k_E$
V
$x-$
t
??
k_E
k_D
V
$\dot{x}(t) =$
$[V +$
$\sqrt{2D}\xi(t)]\eta(t). Here, is the mean particle velocity while is a diffusivity [units^2/T^3$
$\xi(t)$
$\eta(t)$
$\eta =$
1
$\eta =$
0
$\eta =$
0
$\eta =$
1
k_E
$\eta =$
1
$\eta =$
0
k_D
$P(t) =$
$k_D \exp(k_D t)$
$P(t) =$
$k_E \exp(k_E t)$
$k =$
$k_E +$
k_D
??
??
??
??
??
$\eta(t)$
$\xi(t)$
$P(x, t)$
$x =$
0
$t =$
0
x
t
$P(x', t) =$
$\delta(x' -$
$x(t))_{\eta,\xi}$
$x(t)$
??
??
^{2}
$+$
$V +$
$k_E V +$
$k -$
$D^2 -$
$k_E D^2) P(x, t) =$
$0 for the position probability distribution. The master equation$ **??** $is a diffusion-$
$like equation governing the probability distribution of position for individual particles alternating between motion and rest, with t$
k_E
$(+V -$
$D^2) P =$
0
??
??
$P(x, t)$
??
??
??
??