

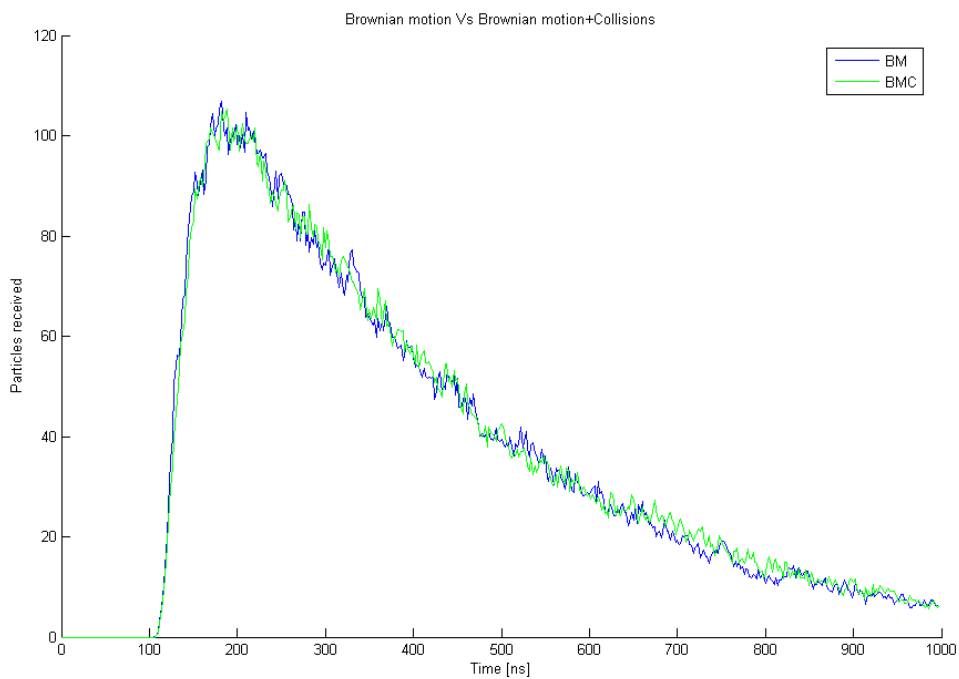
## Simulator Results 2

In the last versions of the simulator, we have added 2 options: we can activate collisions among particles; this models the physical particle diffusion in the medium and the possible elastic collisions among particles, and we can add inertia to the particles, maintaining the previous velocity.

- Adding collisions:

The result of adding collisions is an increment of the computational cost and a slightly variation of the concentration measured by the receiver. The collisions we consider only affect changing the position of the particles during the time step (if the colloid), but after it Brownian motion is applied again.

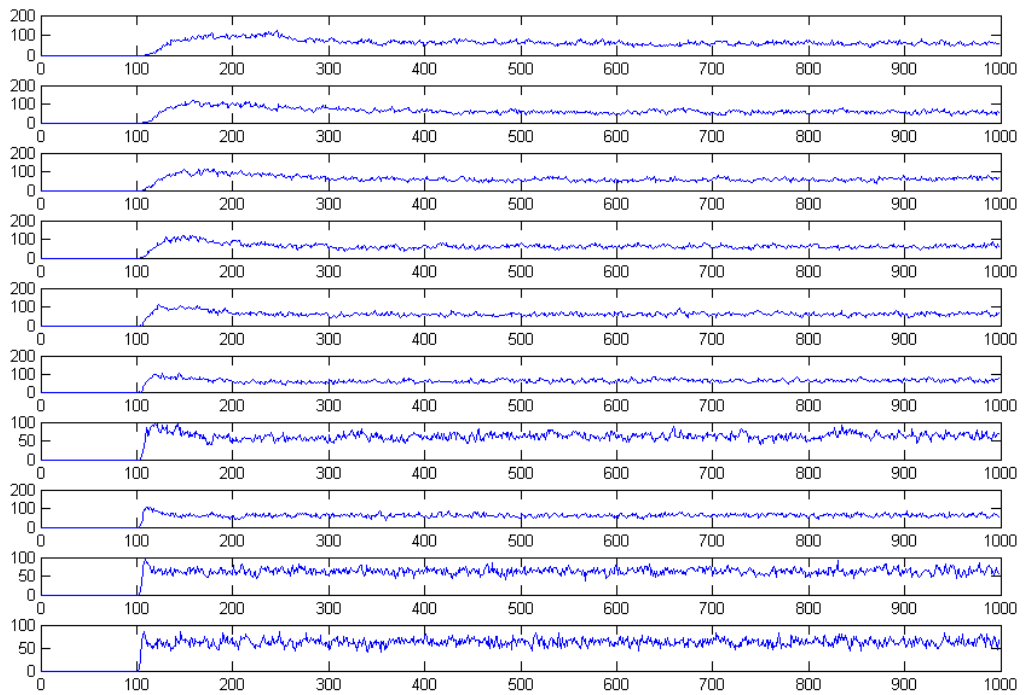
The transmitter releases a pulse of amplitude=10000 particles in time =100ns and this is what is received by a receiver 500nm away, in average, both of the same dimensions, Radius =100nm. Total time is 1000ns and time step=2ns.



- Adding Inertia:

Adding inertia has the effect of speed up the signal transmission drastically. In the following graph the inertia factor is incremented from 0 to 0.9 in each row.

The transmitter releases a pulse of amplitude=10000 particles in time =100ns as in the previous example, and this is what is received by a receiver 500nm away, both of the same dimensions, Radius =100nm. Time step =1ns.



This figure shows how velocity increases, the values goes from 3.4014m/s to 55,556m/s

