

Extension to Particles

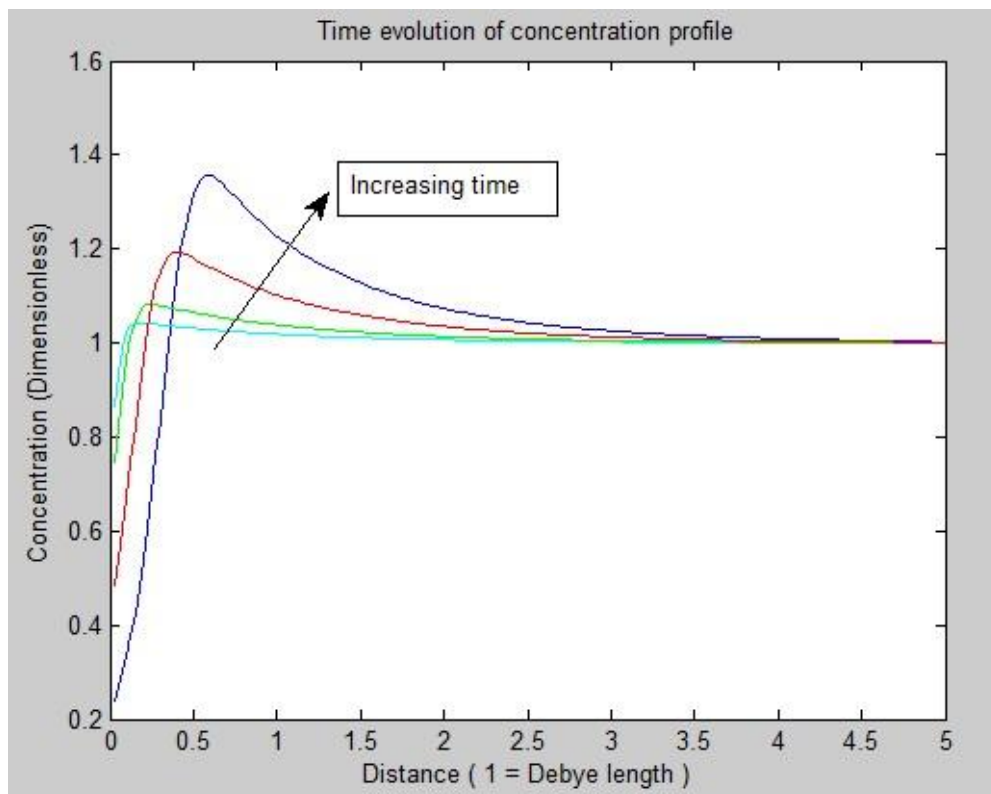
The code was run after making the following assumptions.

$$A(\Gamma) = 50 \times (\Gamma/\Gamma_{\max})$$

Beta = 10^6 (Adsorption rate constant. Set high so that it is diffusion limited)

Diffusivity (non-dimensional) = 10^{-2}

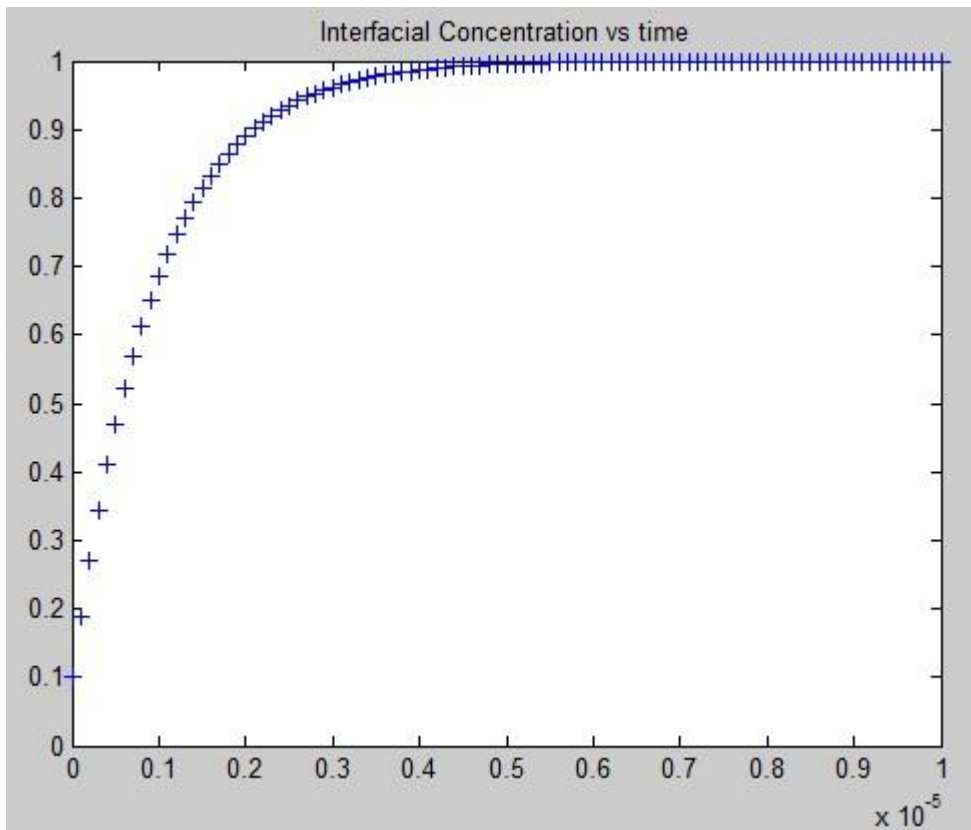
Equilibrium constant = 10^6 (Making the process effectively irreversible)



The concentration of particles is rising above the value at infinity. The following might explain.

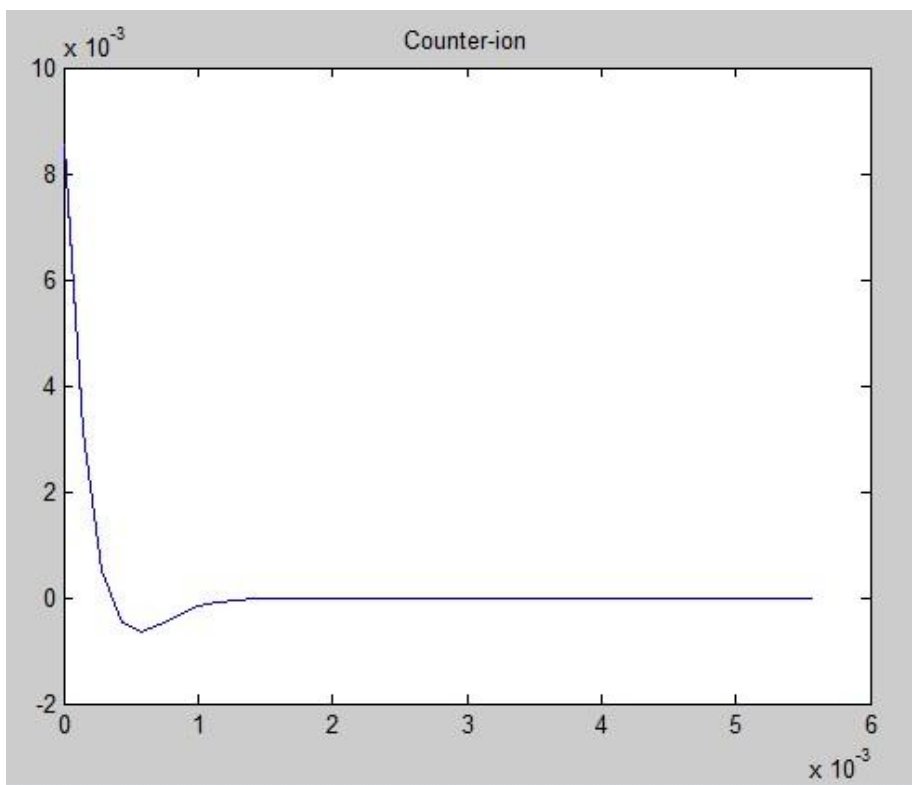
- Diffusivities of particles are generally lower.
- We made an assumption on potential. It is dependent only on interface concentration.

We can get more accurate results by using the formulae for potential that has been already used in MacLeod.



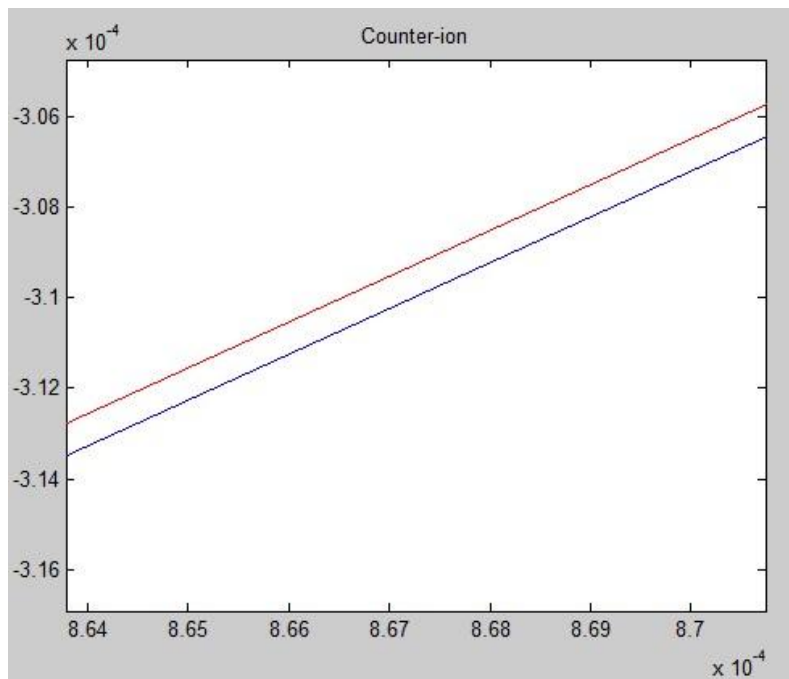
Macleod, Radke

Comparison of convergence method vs 1 step method

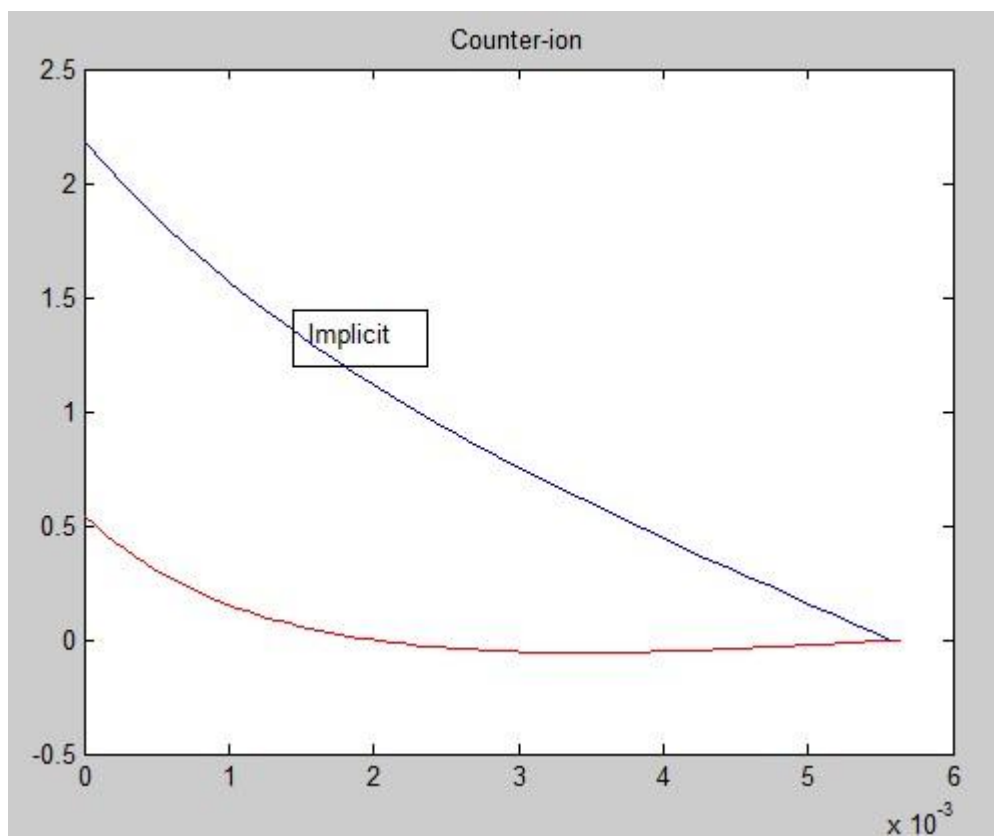


Clearly, a perfect overlap

Zoomed in



Explicit method vs implicit method



Equation Solved, fsolve Stalled

`fsolve` found a point where the sum of squares of function values is less than the square root of the *TolFun* tolerance. However, the last step was less than the *TolX* tolerance, indicating the function may be changing rapidly, or that the function is not smooth near the final point. This is the meaning of *stalled*.

For suggestions on how to proceed, see [Local Minimum Possible](#).

Definitions

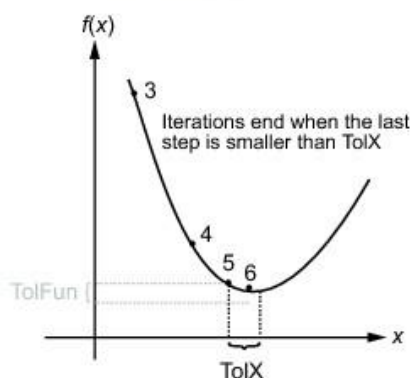
► [fsolve Solution Method](#)

► [TolFun](#)

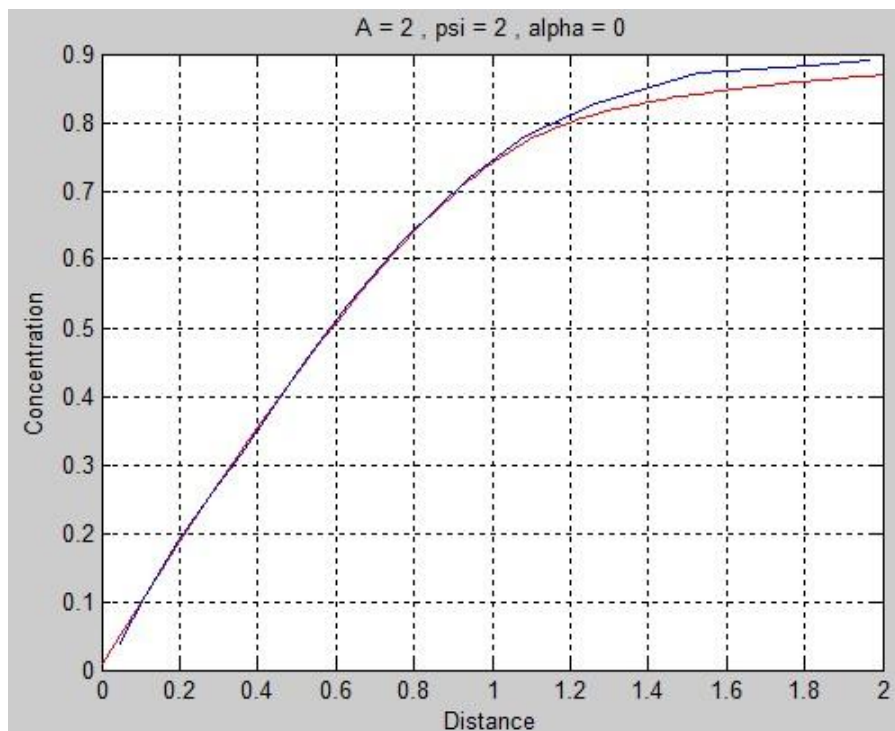
► [tolerance](#)

▼ [TolX](#)

TolX is a *tolerance* for the size of the last step, meaning the size of the change in location where `fsolve` was evaluated.



Borwankar



Still unexplained (not a perfect overlap)