NISP Code Suit

Table-1: Simple Electronegative code suit

Sl. No	Code Name	Working
1	drv_sub.m	Solves for Ψ_s with respect to α_0
2	sub.m	Subroutine of drv_sub.m
3	single_multiple.m	Subroutine file of drv_single_multiple.m & segregates the α_0 for which Ψ_s is single valued and multiple valued.
4	find_xdata.m	Subroutine file that finds the indices of the 'xdata' which are equal to a desired α_0.
5	find_multivalued_range.m	Finds the range of α_0 for which Ψ is multivalued.
6	drv_pot.m	Driver file to solve the Poisson's equation for simple electronegative case.
7	sub_pot.m	Subroutine file for solving the Poisson' sequation.
8	drv_F.m	Driver file to solve the differential equation of the square of the electric field.
9	sub_F.m	Subroutine file corresponding to drv_F.m.
10	F_plot.m	File to plot the function F with Ψ.
11	plot_pot.m	Plots the potential profile based on various mat file.

Table-2: Description of the nisp code-suit

Sl. No	Code Name	Working
1.	drv_sub.m	Solves for Ψ_s with respect to α_0
2.	sub.m	Subroutine of drv_sub.m
3.	Jp_alpha.m	Calculates and Saves the positive ion current density for various values of α_0
4.	Jp_alpha_plot.m	Plots the current density for various values of α_0. Must run after executing Jp_alpha.m
5.	Jp_delta.m	Calculates and Saves the positive ion current density for various values of δ
6.	Jp_delta_plot.m	Plots the current density for various values of δ. Must run after executing Jp_delta.m
7.	Jp_gamma.m	Calculates and Saves the positive ion current density for various values of γ.
8.	Jp_gamma_plot.m	Plots the current density for various values of γ. Must run after executing Jp_gamma.m
9.	F_alpha.m	Plots the variation of F for various values of α_0
10.	drv_single_multiple.m	Driver file to find the first and the last values of the electronegativity (α_0) for which the electric potential (Ψ_s) has multiple values. The program also plots the variation $\alpha_0 - \Psi_s$. The code depends on two subroutine files, single_multiple.m and find_xdata.m.
11.	single_multiple.m	Subroutine file of drv_single_multiple.m & segregates the α_0 for which Ψ_s is single valued and multiple valued.
12.	find_xdata.m	Subroutine file that finds the indices of the 'xdata' which are equal to a desired α_0.