A graphical abstract:

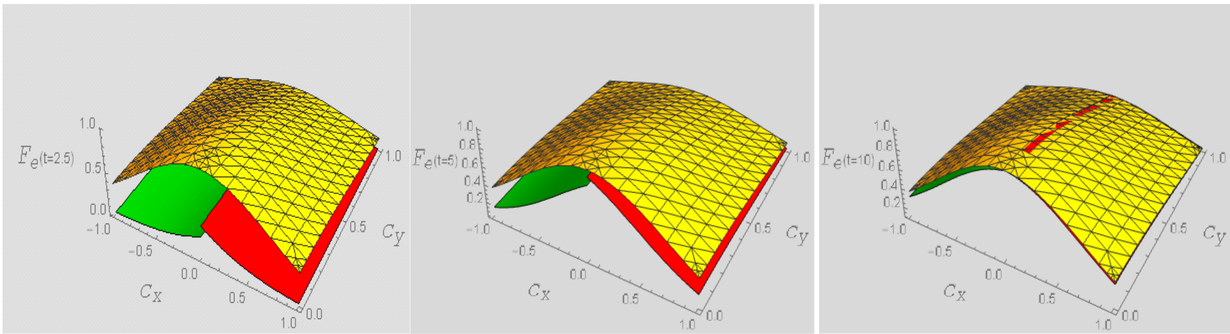

Fig. 1B. The combination of the perturbed electron velocity distribution functions F_e: F_1 (green) and F_2 (red) compared to the equilibrium velocity distribution function F_o (grid) at (*t* = 2.5, 5, and 10) with the Mach number of the plate *M*= 0.01 at y=1.

The behavior of solutions that appears in Fig. 1B reveals that the effect of the plate motion on the electron velocity distribution function is very significant. Figure 1B displays the perturbed electron velocity distribution function in the nearby area of the flat plate that suddenly set in motion with Mach number equals to 0.01. As shown in Fig. 1B, the deviation from equilibrium decreasing with time as the system tries to reach an equilibrium state as expected from Le Chatelier's principle. Therefore, the electron velocity distribution function F_e approach to equilibrium velocity distribution function F_0 as $t=10$, a result which strengthens the interpretation of the equilibrium principle. According to Le Chatelier, the position of equilibrium at a certain point in time for the perturbed electron velocity distribution functions F_1 and F_2 approach to the equilibrium distribution function F_0, which is of interest to our problem (see Figs. 1B).