

(b) Counterflow flames (easier to analyze...)

See Tutorial 2.2.5 in Chemkin ("opposed-flow flame" in Samples folder)

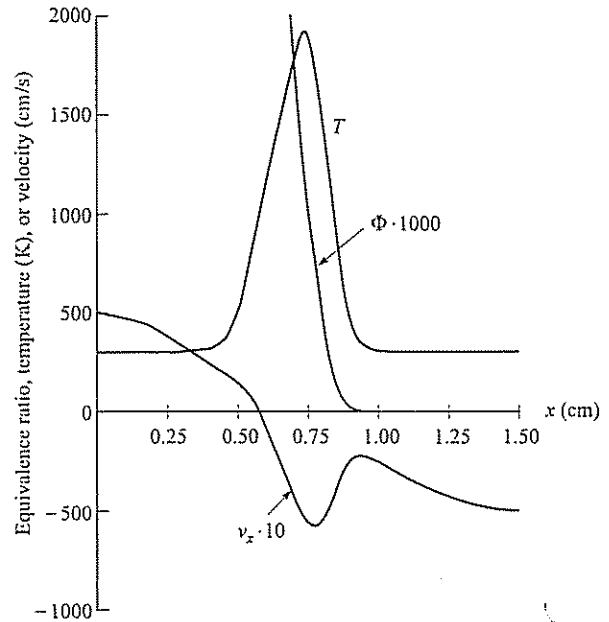
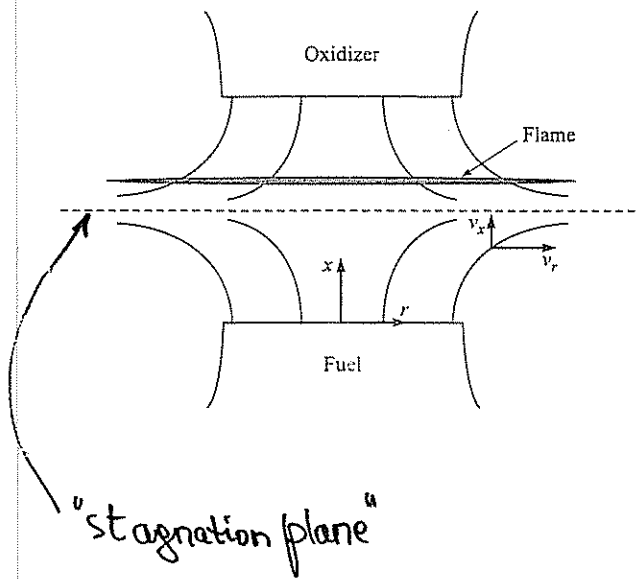
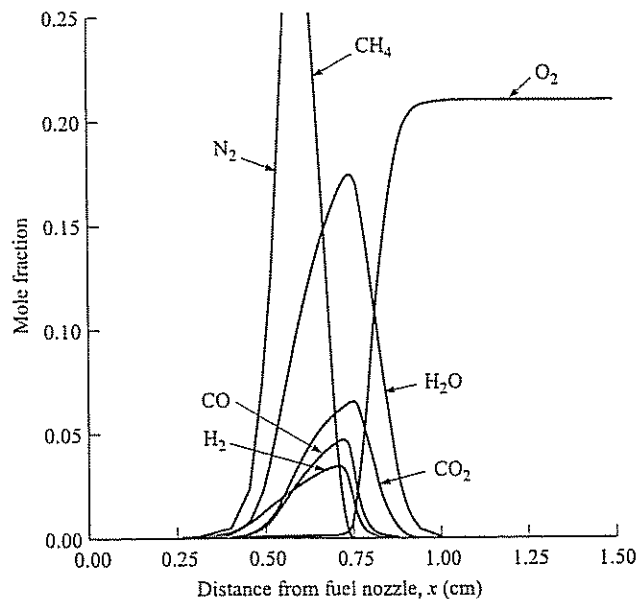


Figure 9.16 Equivalence ratio, temperature, and velocity profiles through CH₄-air counterflow diffusion flame. The CH₄ and air streams both exit at 50 cm/s; L = 1.5 cm.

Let's use Chemkin to see whether we can (easily?) reproduce these flame profiles! Need to select thermo, kinetics and transport parameters!



Carefully! →

... and then let Chemkin do the math

- (a) energy Balance
- (b) mass Balance
- (c) species (mole) Balance

Figure 9.17 Major species mole-fraction profiles through CH₄-air counterflow flame. Same conditions as Fig. 9.16.