Readme file for "Modelling of Lewis Number dependence of scalar dissipation rate transport for large eddy simulations of turbulent premixed combustion" by Y. Gao and N. Chakraborty

The methodology adopted to generate the data is discussed in details in Section 2 and 3 of the paper (i.e. Mathematical Background and Numerical Implementation). Please refer to those sections of the paper and references therein.

The results corresponding to Figure 1 is kept in a sub-folder called 'Figure1'

- Description of 'Figure 1': It has all the source MATLAB files in *.fig format for Fig. 1 of the paper.
- Fig. 1 description: Distributions of $\widetilde{c}$ on $x_1 - x_2$ mid-plane for $\Delta = 0.8\delta_{th}$ (1st column); $1.6\delta_{th}$ (2nd column); $2.8\delta_{th}$ (3rd column) for cases A-E (1st -5th row) when the statistics were extracted (i.e. $t = 1.75\alpha_{T0} / S_L^2$).
- Naming convention of the files in 'Figure 1': le**a**n**b** where a=34,06,08,10,12 indicate global Lewis numbers $Le = 0.34, 0.6, 0.8, 1.0$ and 1.2 respectively; b=8,16,28 correspond to $\Delta/\delta_{th} = 0.8, 1.6$ and 2.8 respectively.

The results corresponding to Figure 2 is kept in a sub-folder called 'Figure 2'

- Description of 'Figure 2': It has all the source MATLAB files in *.fig format for Fig. 2 of the paper.
- Fig. 2 description: Variations of T_1 ( ), T_2 ( ), T_3 ( ), T_4 ( ), $(-D_2)$ ( ) and $f(D)$ ( ) conditionally averaged in bins of $\widetilde{c}$ for $\Delta \approx 0.4\delta_{th}$ (1st column), $1.6\delta_{th}$ (2nd column) and $2.8\delta_{th}$ (3rd column) in cases A-E (1st -5th row). All the terms are normalised with respect to $\rho_0 S_L^2 / \delta_{th}^2$.
- Naming convention of the files in 'Figure 2': Figure2.fig.

The results corresponding to Figure 3 is kept in a sub-folder called 'Figure 3'

- Description of 'Figure 3': It has all the source MATLAB files in *.fig format for Fig. 3 of the paper.
- Fig. 3 description: Variations of $J_{sg}^{+} = (\overline{\rho u_i N_c} - \bar{\rho}\widetilde{u}_i \widetilde{N}_c) M_i \times \delta_{th} / \rho_0 S_L^2$ ( ) conditionally averaged in bins of $\widetilde{c}$ along with the predictions of eqs. 6i and 6ii with $\Phi' = 0.7$ ( ) and eq. 6i and 6ii with Φ' according to eq. 6iii ( ) for $\Delta \approx 0.4\delta_{th}$ (1st column), $1.6\delta_{th}$ (2nd column) and $2.8\delta_{th}$ (3rd column) in cases A-E (1st -5th row).
- Naming convention of the files in 'Figure 3': Le**a**fluxn**br** where a=34,06,08,10,12 indicate global Lewis numbers $Le = 0.34, 0.6, 0.8, 1.0$ and 1.2 respectively; b=4,16,28 correspond to $\Delta/\delta_{th} = 0.4, 1.6$ and 2.8 respectively.

The results corresponding to Figure 4 is kept in a sub-folder called 'Figure 4 '

- Description of 'Figure 4': It has all the source MATLAB files in *.fig format for Fig. 4 of the paper.
- Fig. 4 description: Variations of T_2 ( ) and $(T_2)_{sg}$ ( ) conditionally averaged in bins of $\widetilde{c}$ along with the predictions of eq.8 ( ) and eq. 9 ( ) for $\Delta \approx 0.4\delta_{th}$ (1st column),

$1.6\delta_{th}$ (2nd column) and $2.8\delta_{th}$ (3rd column) in cases A-E (1st -5th row). All the terms are normalised with respect to $\rho_0 S_L^2 / \delta_{th}^2$.

- Naming convention of the files in 'Figure 4': Le**a**_t2n**b**r where a=34,06,08,10,12 indicate global Lewis numbers $Le = 0.34, 0.6, 0.8, 1.0$ and 1.2 respectively; b=4,16,28 correspond to $\Delta/\delta_{th} =$ 0.4, 1.6 and 2.8 respectively.

<u>The results corresponding to Figure 5 is kept in a sub-folder called 'Figure 5 '</u>

- Description of 'Figure 5': It has all the source MATLAB files in *.fig format for Fig. 5 of the paper.
- Fig. 5 description: Variations of T_3 ( ) and $(T_3)_{res}$ ( ) conditionally averaged in bins of $\tilde{c}$ along with the predictions of eqs.12i and 12iii ( ) and eqs. 13i and 13ii ( ) for $\Delta \approx 0.4\delta_{th}$ (1st column), $\Delta \approx 1.6\delta_{th}$ (2nd column) and $\Delta \approx 2.8\delta_{th}$ (3rd column) in cases A-E (1st - 5th row). All the terms are normalised with respect to $\rho_0 S_L^2 / \delta_{th}^2$.
- Naming convention of the files in 'Figure 5': Le**a**_t3n**b**r where a=34,06,08,10,12 indicate global Lewis numbers $Le = 0.34, 0.6, 0.8, 1.0$ and 1.2 respectively; b=4,16,28 correspond to $\Delta/\delta_{th} =$ 0.4, 1.6 and 2.8 respectively.

<u>The results corresponding to Figure 6 is kept in a sub-folder called 'Figure 6 '</u>

- Description of 'Figure 6': It has all the source MATLAB files in *.fig format for Fig. 6 of the paper.
- Fig. 6 description: Variations of $[T_4 + f(D) - D_2]$ ( ) and $[(T_4)_{sg} - (D_2)_{sg} + \{f(D)\}_{sg}]$ ( ) conditionally averaged in bins of $\tilde{c}$ along with the predictions of eqs.15i and 15ii ( ) and eq. 16 ( ) for $\Delta \approx 0.4\delta_{th}$ (1st column), $1.6\delta_{th}$ (2nd column) and $2.8\delta_{th}$ (3rd column) in cases A-E (1st -5th row). All the terms are normalised with respect to $\rho_0 S_L^2 / \delta_{th}^2$.
- Naming convention of the files in 'Figure 6': Le**a**_termsn**b**r where a=34,06,08,10,12 indicate global Lewis numbers $Le = 0.34, 0.6, 0.8, 1.0$ and 1.2 respectively; b=4,16,28 correspond to $\Delta/\delta_{th} =$ 0.4, 1.6 and 2.8 respectively.

In order to get exact values from the plots one can follow one of the following methods:

(i) Put the data cursor on a location on a lineplot which will give x and y coordinates of that location.
(ii) Open the property editor of a line for the line plots -> Opt for more properties-> Xdata and Ydata will give all the necessary data for the plot.