**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 $\tilde{c}$ on $x_1 - x_2$ mid-plane for $\Delta = 0.8\delta_{th}$ (1$^{st}$ column); $1.6\delta_{th}$ (2$^{nd}$ column); $2.8\delta_{th}$ (3$^{rd}$ column) for cases A-E (1$^{st}$ -5$^{th}$ 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 $\tilde{c}$ for $\Delta \approx 0.4\delta_{th}$ (1$^{st}$ column), $1.6\delta_{th}$ (2$^{nd}$ column) and $2.8\delta_{th}$ (3$^{rd}$ column) in cases A-E (1$^{st}$ -5$^{th}$ 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 $J_{sg}^+ = (\overline{\rho u_i N_c} - \overline{\rho}\widetilde{u}_i\widetilde{N}_c)M_i \times \delta_{th} / \rho_0 S_L^2$ (——) conditionally averaged in bins of $\tilde{c}$ along with the predictions of eqs. 6i and 6ii with $\Phi' = 0.7$ (—✕—) and eq. 6i and 6ii with $\Phi'$ according to eq. 6iii (- - - -) for $\Delta \approx 0.4\delta_{th}$ (1$^{st}$ column), $1.6\delta_{th}$ (2$^{nd}$ column) and $2.8\delta_{th}$ (3$^{rd}$ row) in cases A-E (1$^{st}$ -5$^{th}$ 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 $\tilde{c}$ along with the predictions of eq.8 (—✕—) and eq. 9 (- - - -) for $\Delta \approx 0.4\delta_{th}$ (1$^{st}$ column),

$1.6\delta_{th}$ ($2^{nd}$ column) and $2.8\delta_{th}$ ($3^{rd}$ column) in cases A-E ($1^{st}$ -$5^{th}$ 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 $\Delta \approx 0.4\delta_{th}$ ($1^{st}$ column), $\Delta \approx 1.6\delta_{th}$ ($2^{nd}$ column) and $\Delta \approx 2.8\delta_{th}$ ($3^{rd}$ column) in cases A-E ($1^{st}$ -$5^{th}$ 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 $\Delta \approx 0.4\delta_{th}$ ($1^{st}$ column), $1.6\delta_{th}$ ($2^{nd}$ column) and $2.8\delta_{th}$ ($3^{rd}$ column) in cases A-E ($1^{st}$ -$5^{th}$ 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.