Data files relating to the research published in the paper:

"High throughput imaging cytometer with acoustic focussing"

A. COMSOL model

The file "*rectangular capilary UNSOLVED.mph*" is a COMSOL 5.0 finite element model that predicts the flow profile in a rectangular capillary as described in the paper.

B. MPIV data analysis

The matlab code in the folder "*Code to process images.zip*" can be used in conjunction with the data files "*RAW images.zip*" to generate data on flow uniformity under acoustic excitation as described in the paper. The 1Hz and 20Hz data refer to the galvo mirror frequencies, with multiple exposures taken during the course of each mirror cycle.

Use the code as follows:

Before starting, obtain the mpiv toolbox (e.g. http://www.mathworks.com/matlabcentral/fileexchange/2411-mpiv) and the "*DACE*" tools that it uses (http://www2.imm.dtu.dk/pubdb/views/publication_details.php?id=1460) and place them in the MATLAB path.

1. add the CTC-matlab-code folder and its subfolders to the Matlab PATH

2. step into the CTC-matlab-code folder and run the *ctcgui2.m*

3. press Load single file and choose the first image file from the data set in the 20 Hz or 1Hz data folder

4. press Load a set and choose all the remaining files

5. from the parameters in the main window edit the Window size by entering 148, 148 values for x and y. Leave other parameters default.

6. press MPIV TP and wait

When this is finished, an file "mpiv_vectada.mat" file will be created in the root directory of the CTC-matlab-code.

For the data visualisation run "data_analysis_gui.m", and at the prompt choose the newly created "mpiv_vecdata.mat".

Press Boxplot and Stat-plot buttons to display plots and use the slider to move between the mpiv sequences. From the dropdown menu choose if you want to investigate the X or Y components or their interpolated versions.