



	Number of grid points (global grid) (wing grid)	Mean $C_L$ (mean error)	Mean $C_D$ (mean error)	Mean $L/D$ (mean error)
Coarse	241 x 251 x 17 65 x 41 x 73	0.35 (3.3 %)	0.45 (6.5 %)	1.28 (3.1 %)
Fine	301 x 321 x 21 81x51x91	0.34 (-)	0.42 (-)	1.24 (-)
Finer	361 x 385 x 25 97 x 61 x 109	0.33 (-1.1 %)	0.41 (-3.0 %)	1.22 (-1.8 %)

Supplementary Data 3. Simulated lift and drag coefficient ( $C_L$  and  $C_D$ ), and lift to drag ratio ( $L/D$ ) for various levels of grid refinement with the exaggerated corrugation model (X4 in figure 2). Three different angles of attack were tested. Mean  $C_L$ ,  $C_D$ ,  $L/D$ , and error of the three cases are summarized in table. While the coarse mesh gives slightly higher value especially at higher angle of attack, the fine and finer meshes show small differences in the simulated forces.