

## The legends for the supplementary xlsx files:

These data show the path of rising bubbles in a silicone oil with the kinematic viscosity 5 mm<sup>2</sup>/s.

Fig.4(c).xlsx is the path of rising bubbles in Fig. 4(c).

Fig.4(d).xlsx is the path of rising bubbles in Fig. 4(d).

Fig.6(High).xlsx is the path of rising bubbles in Fig. 6(a).

Fig.6(Low).xlsx is the path of rising bubbles in Fig. 6(b).

Fig.7(High).xlsx is the path of rising bubbles in Fig. 7(a).

Fig.7(Low).xlsx is the path of rising bubbles in Fig. 7(b).

The first column shows the time (s).

The second, third and fourth columns show the x, y, z-position of the bubble 1(leading bubble).

The fifth, sixth and seventh columns show the x, y, z-position of the bubble 2(trailing bubble).

### Conditions

Fig.4(c).xlsx: ( $a_2/a_1 = 1.035$ ,  $Re_1 = 52$ ,  $Re_2 = 55$ ,  $Re_{ave} = 53$ ,  $We_1 = 2.03$ ,  $We_2 = 2.21$ ,  $We_{ave} = 2.12$ )

Fig.4(d).xlsx: ( $a_2/a_1 = 0.963$ ,  $Re_1 = 53$ ,  $Re_2 = 49$ ,  $Re_{ave} = 51$ ,  $We_1 = 1.96$ ,  $We_2 = 1.78$ ,  $We_{ave} = 1.87$ )

Fig.6(High).xlsx: ( $a_2/a_1 = 1.040$ ,  $Re_1 = 52$ ,  $Re_2 = 55$ ,  $Re_{ave} = 53$ ,  $We_1 = 2.02$ ,  $We_2 = 2.22$ ,  $We_{ave} = 2.12$ )

Fig.6(Low).xlsx: ( $a_2/a_1 = 1.001$ ,  $Re_1 = 33$ ,  $Re_2 = 33$ ,  $Re_{ave} = 33$ ,  $We_1 = 1.07$ ,  $We_2 = 1.07$ ,  $We_{ave} = 1.07$ )

Fig.7(High).xlsx: ( $a_2/a_1 = 0.969$ ,  $Re_1 = 50$ ,  $Re_2 = 47$ ,  $Re_{ave} = 48$ ,  $We_1 = 1.93$ ,  $We_2 = 1.78$ ,  $We_{ave} = 1.85$ )

Fig.7(Low).xlsx: ( $a_2/a_1 = 0.866$ ,  $Re_1 = 36$ ,  $Re_2 = 27$ ,  $Re_{ave} = 31$ ,  $We_1 = 1.18$ ,  $We_2 = 0.72$ ,  $We_{ave} = 0.95$ )