

Figure S1: Unprocessed velocity field for the case of the wobbling bubble.

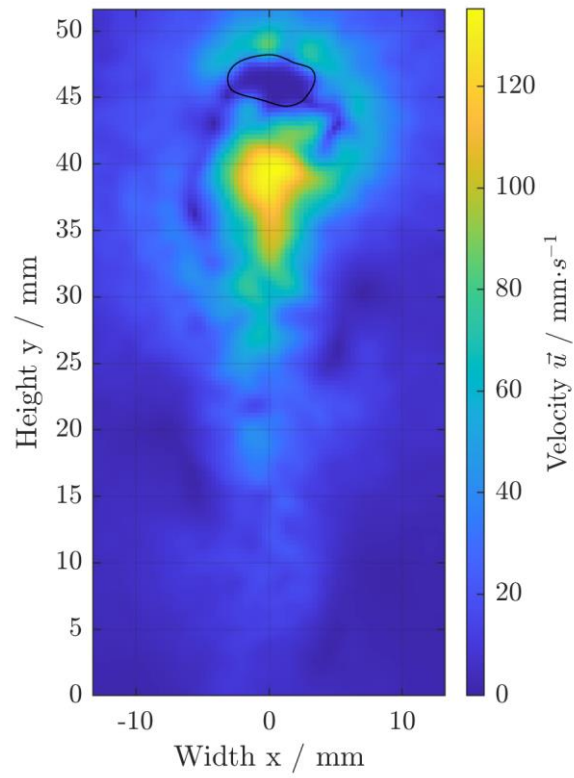


Figure S2: Smoothed velocity field for the case of the wobbling bubble.

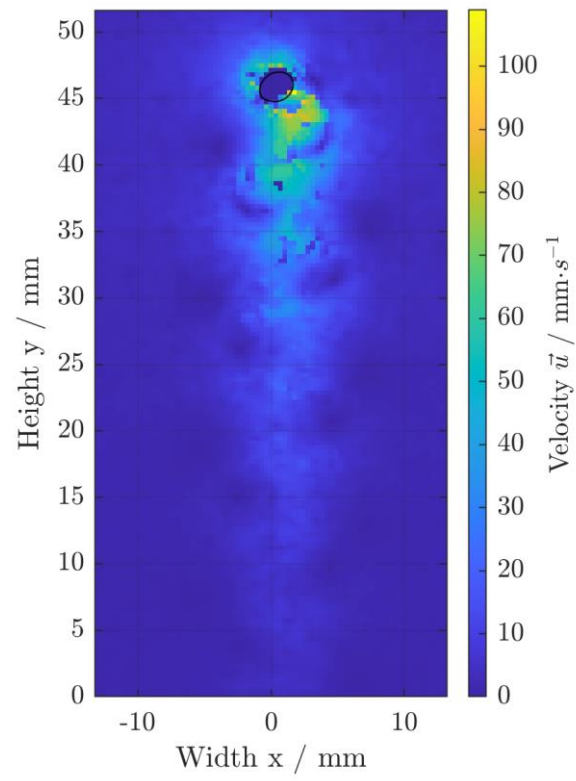


Figure S3: Unprocessed velocity field for the case of the ellipsoidal bubble.

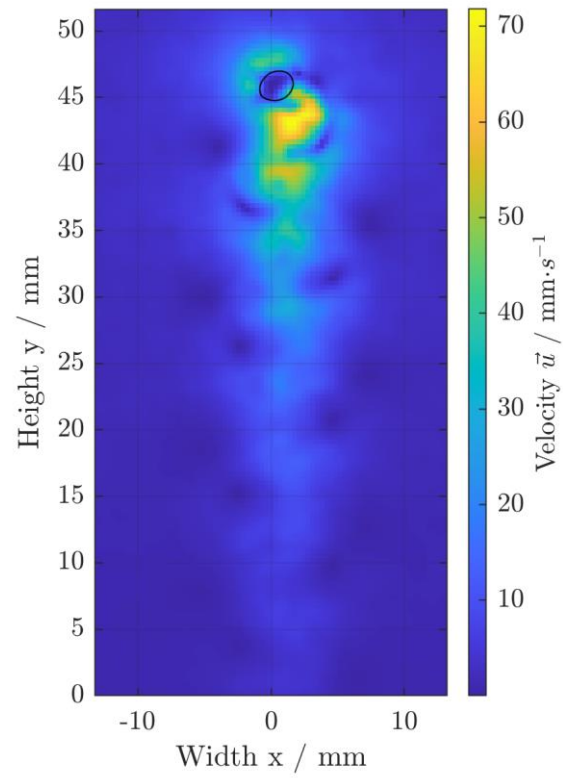


Figure S4: Smoothed velocity field for the case of the ellipsoidal bubble.

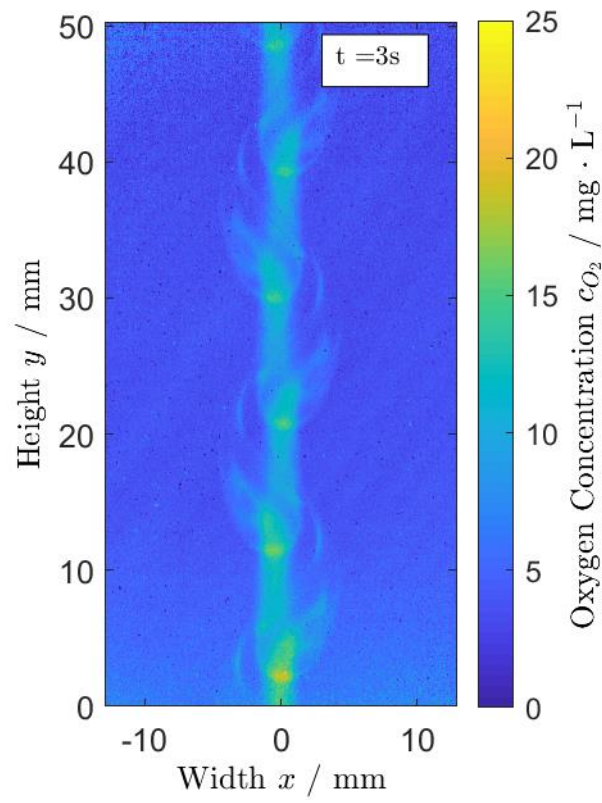


Figure S5: Concentration field in the wake of the wobbling bubble for $t = 3$ s.

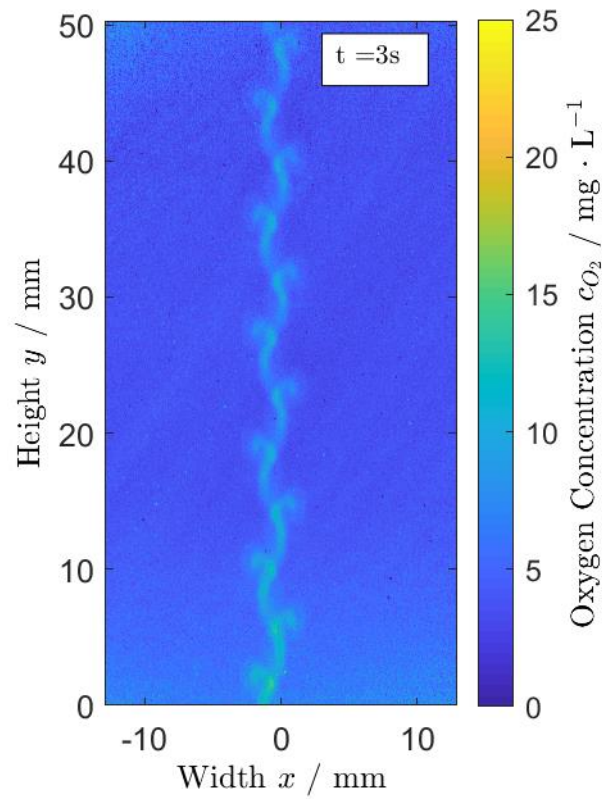


Figure S6: Concentration field in the wake of the ellipsoidal bubble for $t = 3$ s.

Table S1: Parameters used for the PIV image analysis in PIVview 2c V3.62 (PIVTEC GmbH, Germany).

Parameter	Value
Sample	
Window Size / px	64 x 64
Step Size / px	Horizontal: 26; Vertical: 26
Correlate	
Correlation Mode	Standard (FTT) correlation
Number of repetitions	1
Algorithm	
Interrogation method	Multi-pass interrogation
Number of iterations	3
Sub-pixel image shifting	Enable, on all passes
Scheme	B-Spline interpolation
Order	4
Peak Search	
Sub-Pixel Peak Fit	Least squares Gauss fit (3x3)
Validate	
Maximum displacement test / px	25
Maximum displacement difference / px	5
Convert	
Pulse Delay / ms	4
Magnification Factor	41.563 (24.06 $\mu\text{m}/\text{px}$)
Length unit	Mm
Displacement unit	μm
Velocity unit	mm/s