# About OMICS Group

OMICS Group International is an amalgamation of Open Access publications and worldwide international science conferences and events. Established in the year 2007 with the sole aim of making the information on Sciences and technology 'Open Access', OMICS Group publishes 400 online open access scholarly journals in all aspects of Science, Engineering, Management and Technology journals. OMICS Group has been instrumental in taking the knowledge on Science & technology to the doorsteps of ordinary men and women. Research Scholars, Students, Libraries, Educational Institutions, Research centers and the industry are main stakeholders that benefitted greatly from this knowledge dissemination. OMICS Group also organizes 300 International conferences annually across the globe, where knowledge transfer takes place through debates, round table discussions, poster presentations, workshops, symposia and exhibitions.

# About OMICS Group Conferences

OMICS Group International is a pioneer and leading science event organizer, which publishes around 400 open access journals and conducts over 300 Medical, Clinical, Engineering, Life Sciences, Pharma scientific conferences all over the globe annually with the support of more than 1000 scientific associations and 30,000 editorial board members and 3.5 million followers to its credit.

OMICS Group has organized 500 conferences, workshops and national symposiums across the major cities including San Francisco, Las Vegas, San Antonio, Omaha, Orlando, Raleigh, Santa Clara, Chicago, Philadelphia, Baltimore, United Kingdom, Valencia, Dubai, Beijing, Hyderabad, Bengaluru and Mumbai.

# Consecutive vortex ring formation from a pulsed jet

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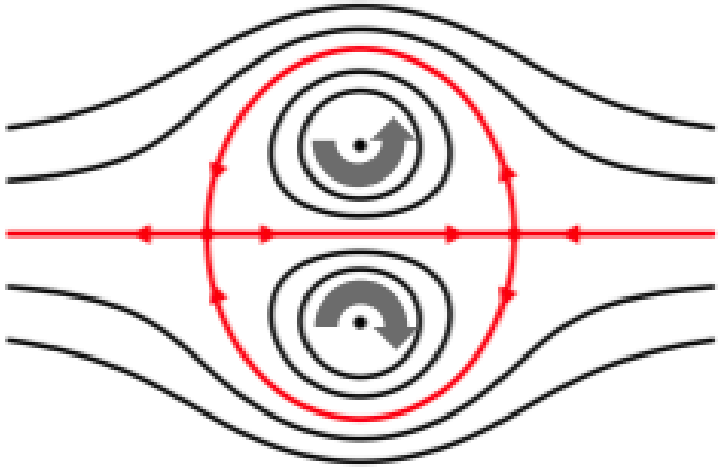
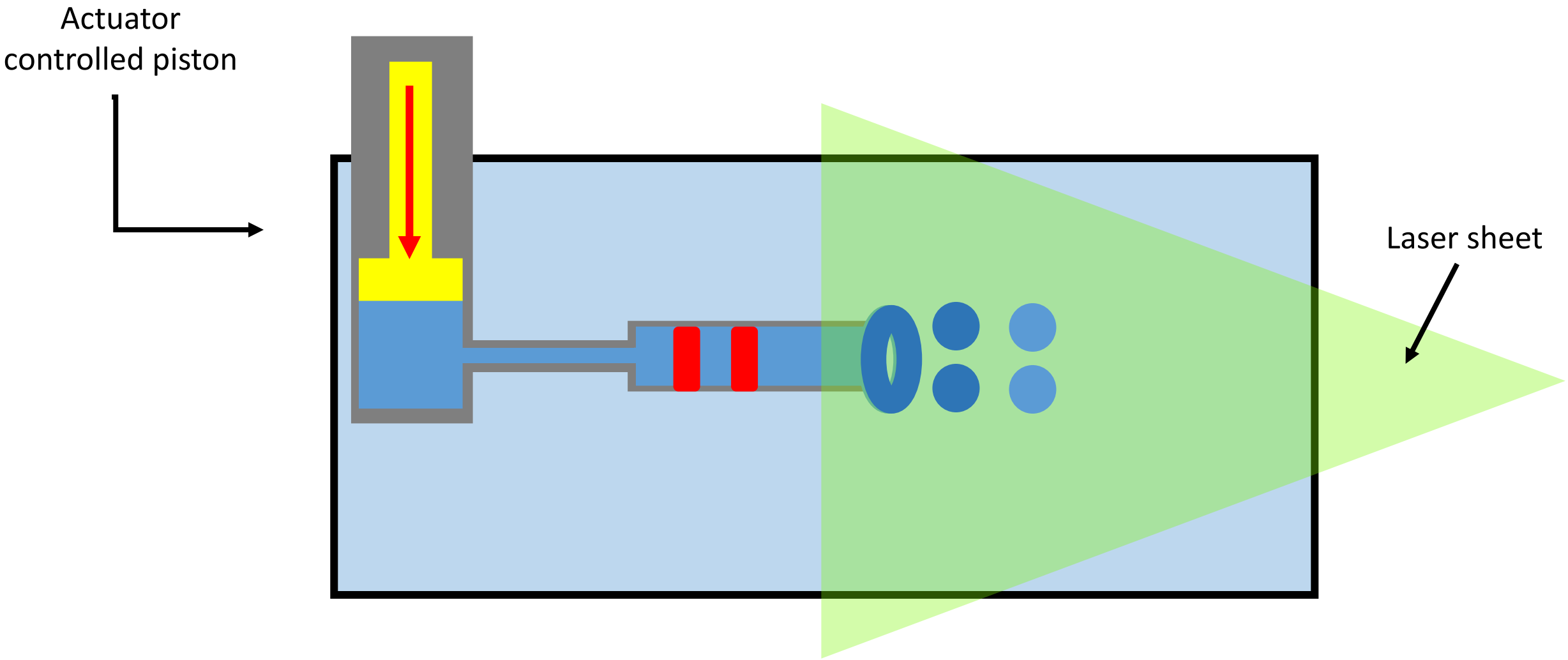
# What is a vortex ring?

A vortex ring is a ring-shaped mass of moving fluid which has rotational motion around an axis disposed in circular form

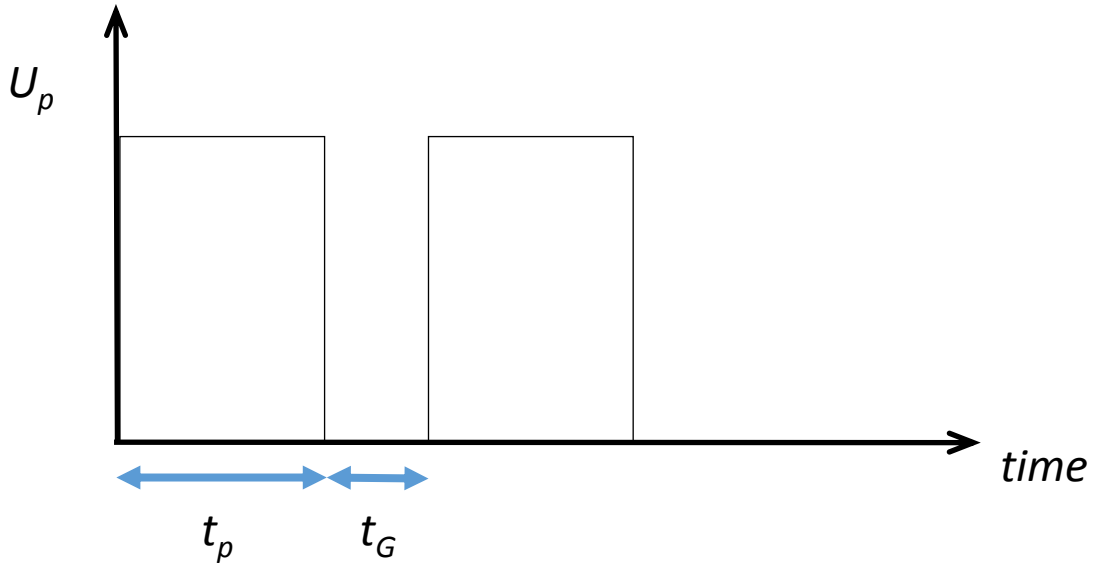


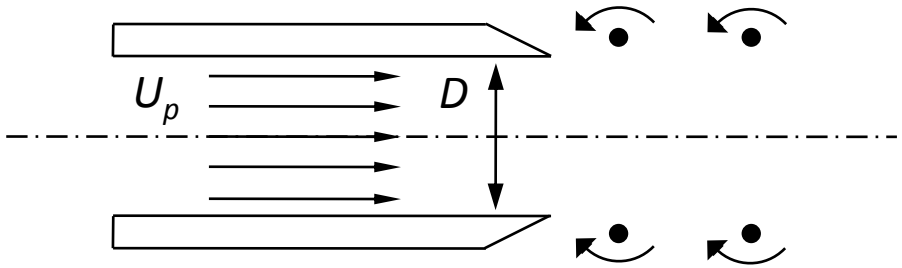
Streamlines on the symmetry plane

# Experimental Setup



# Piston velocity

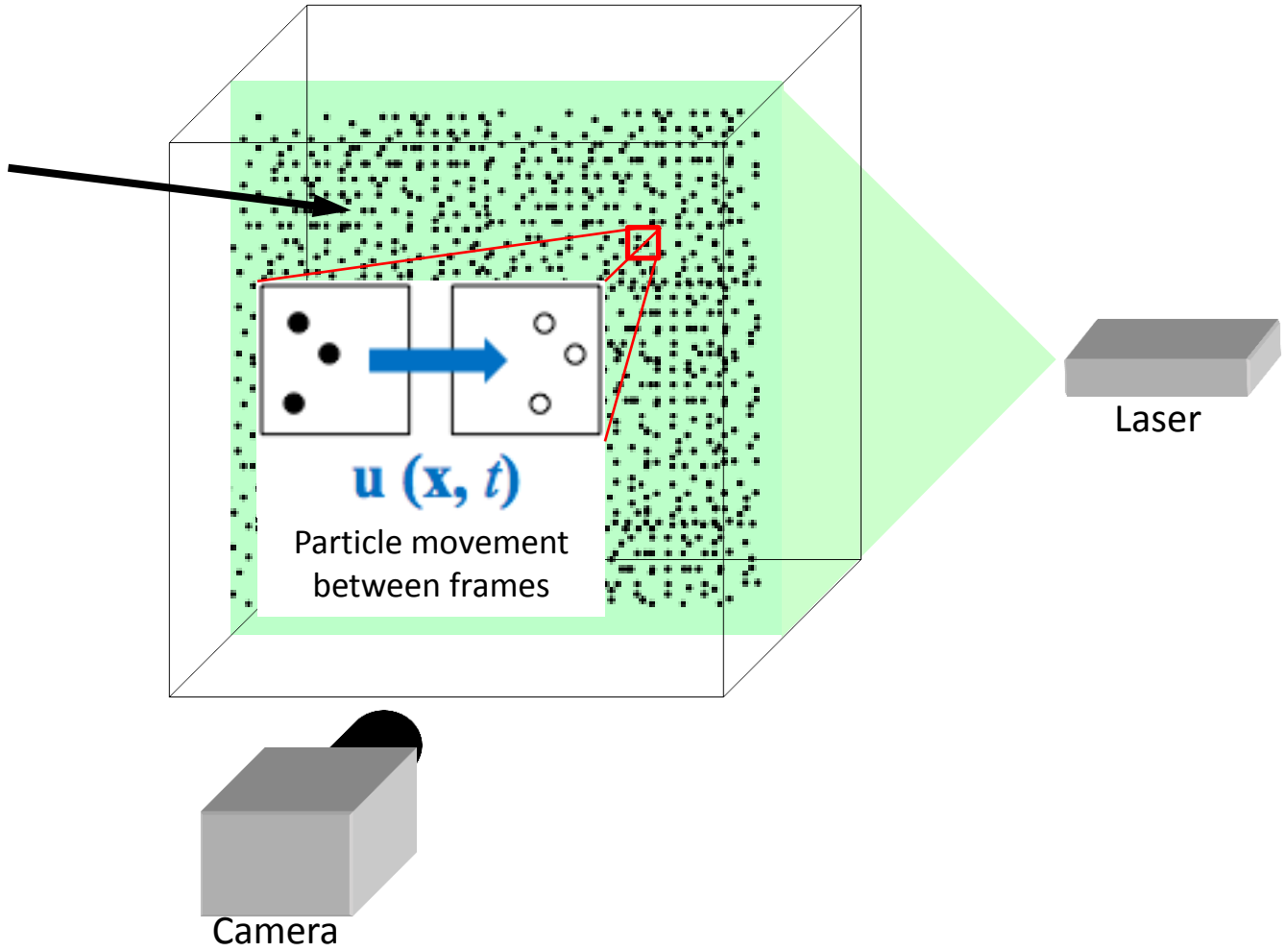


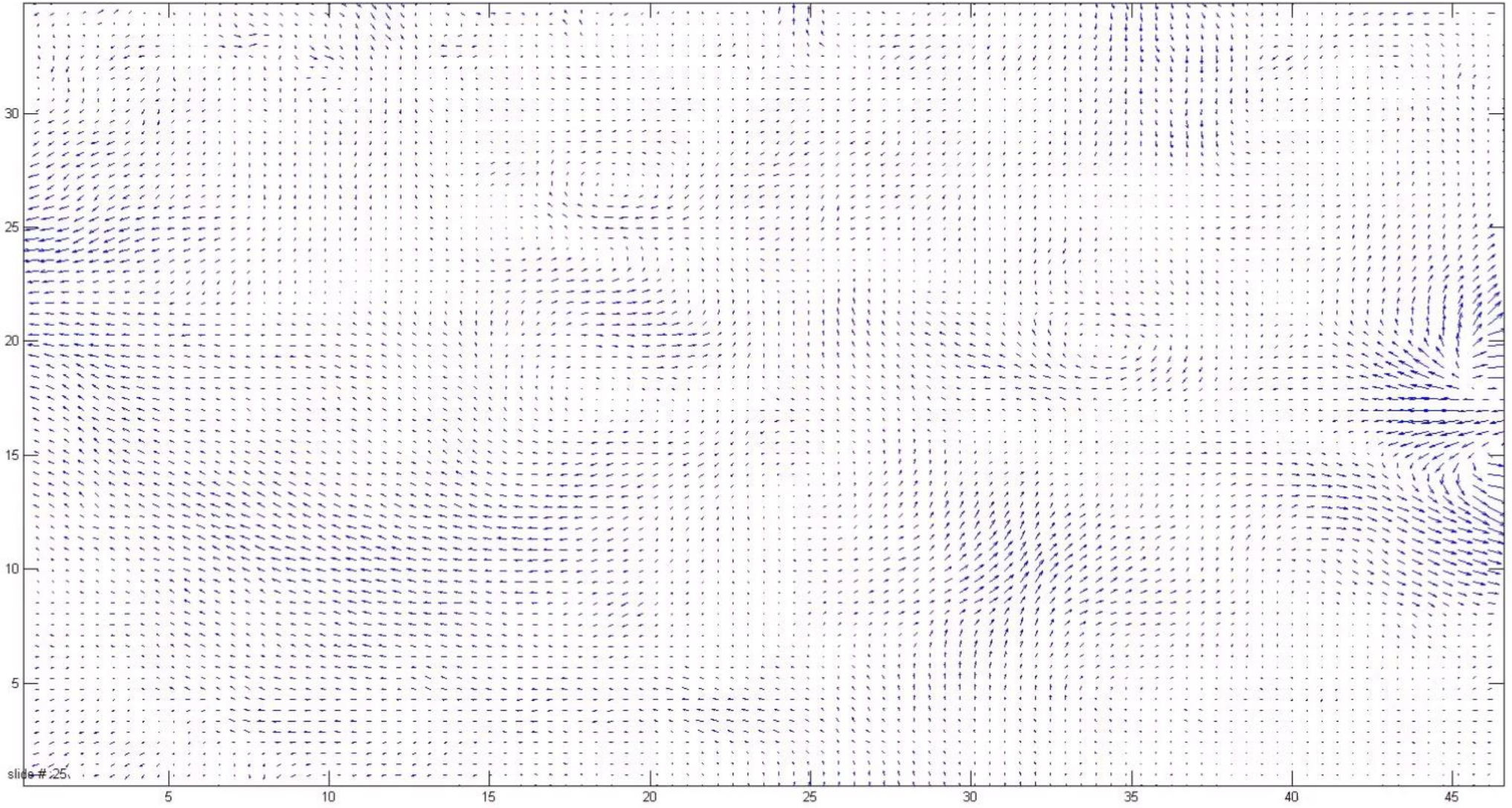



# Quantitative flow measurements

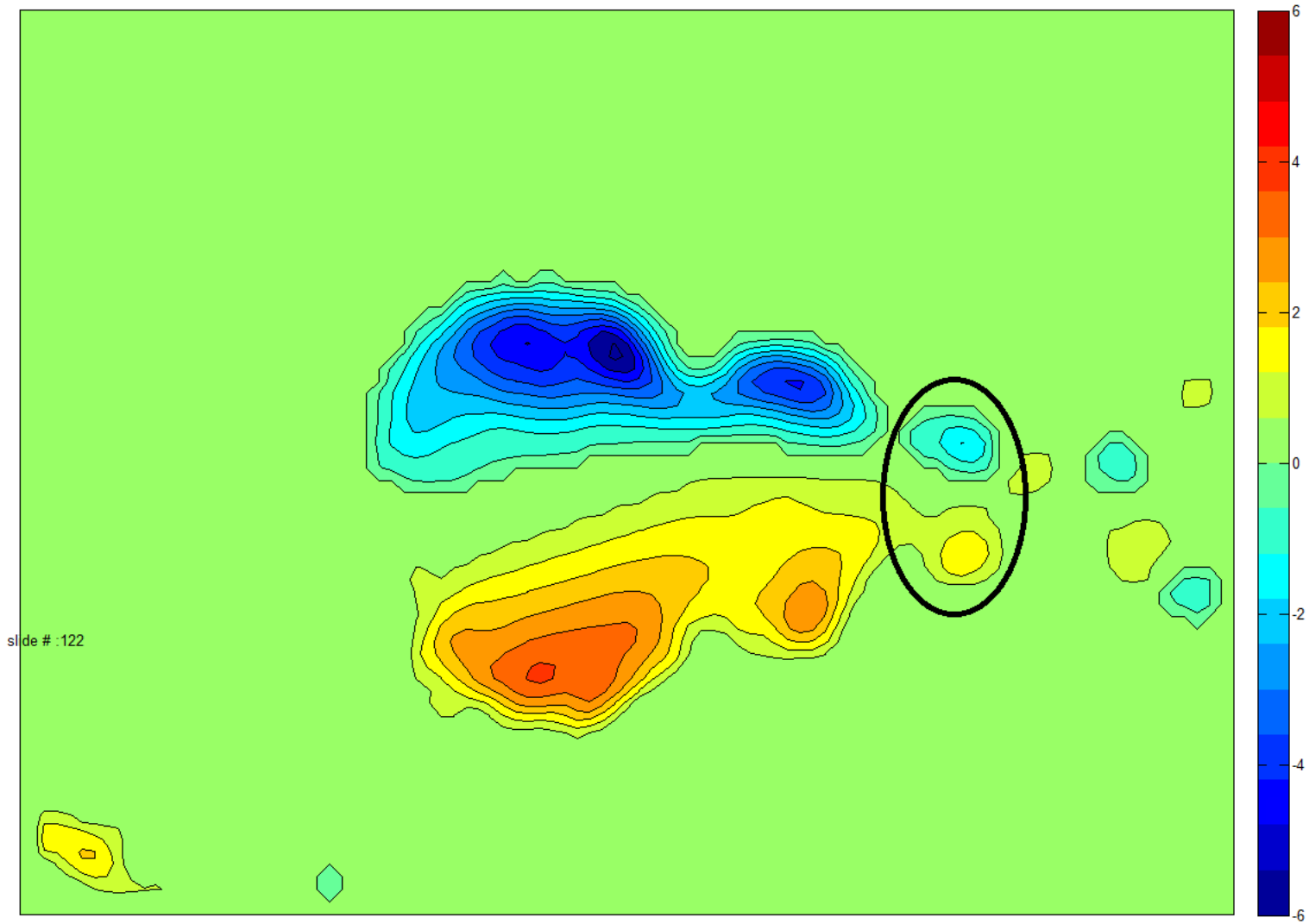
Use digital particle image velocimetry (DPIV) to measure velocity field

Neutrally buoyant glass beads
(mean size: 14 micron )




30
25
20
15
10
5
slide # 25
5
10
15
20
25
30
35
40
45


slide # :34
6
4
2
0
-2
-4
-6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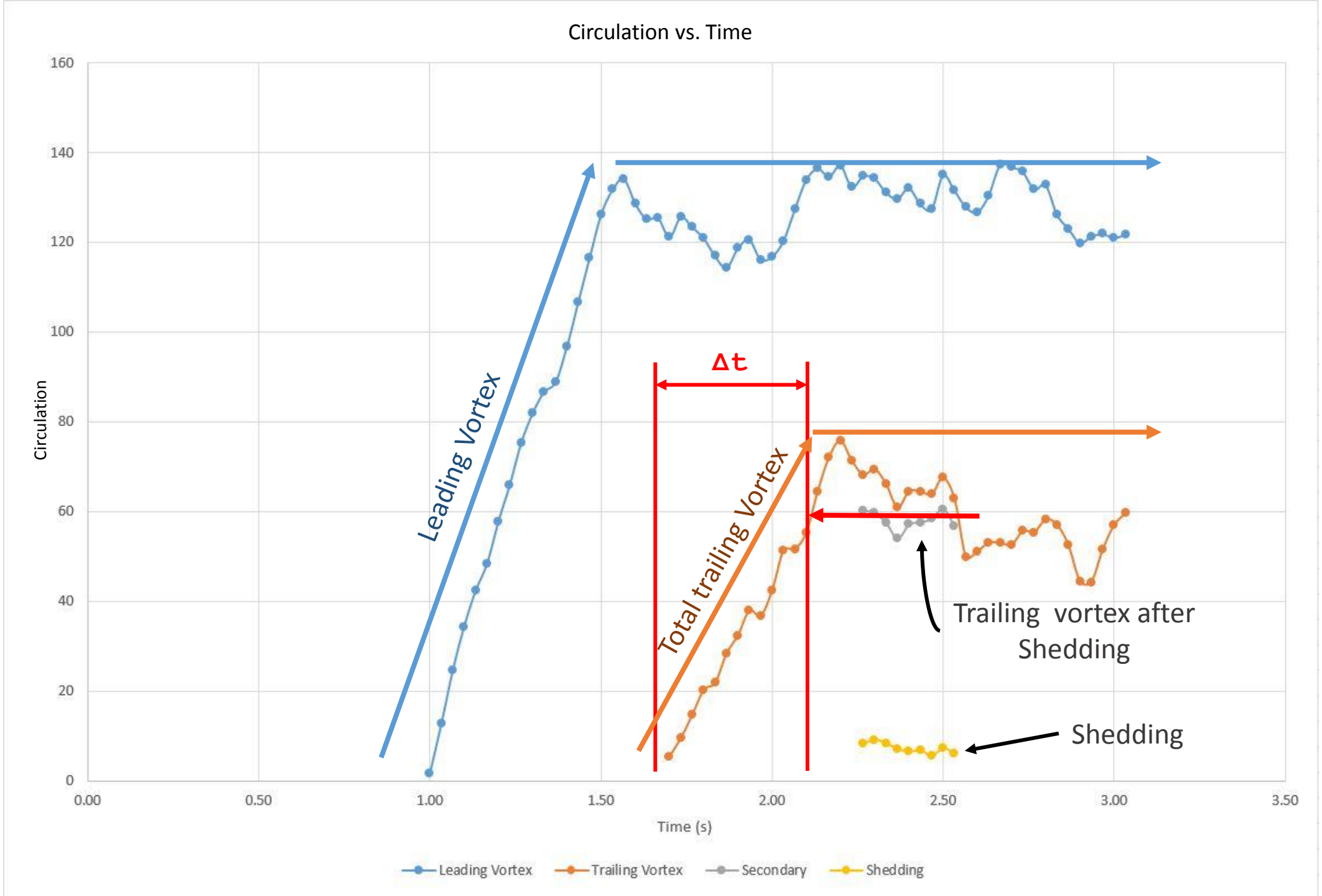
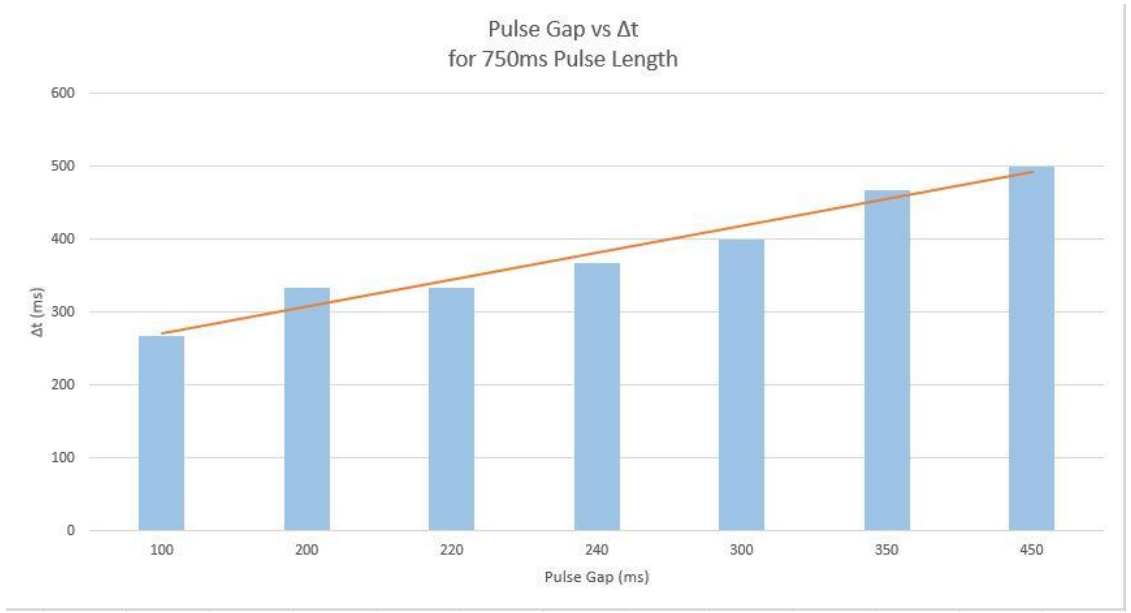
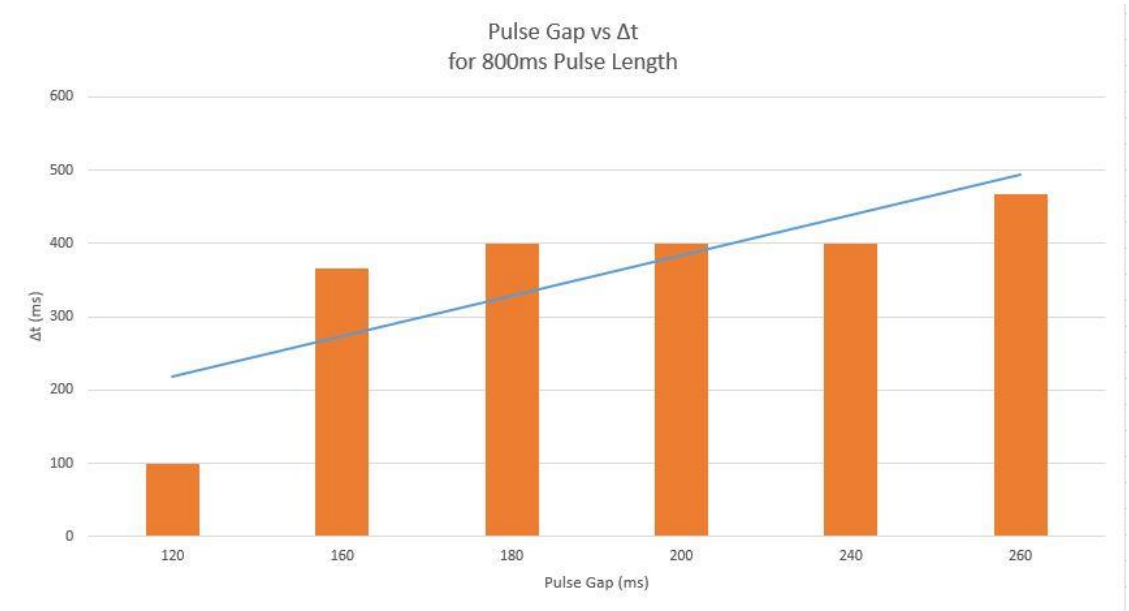
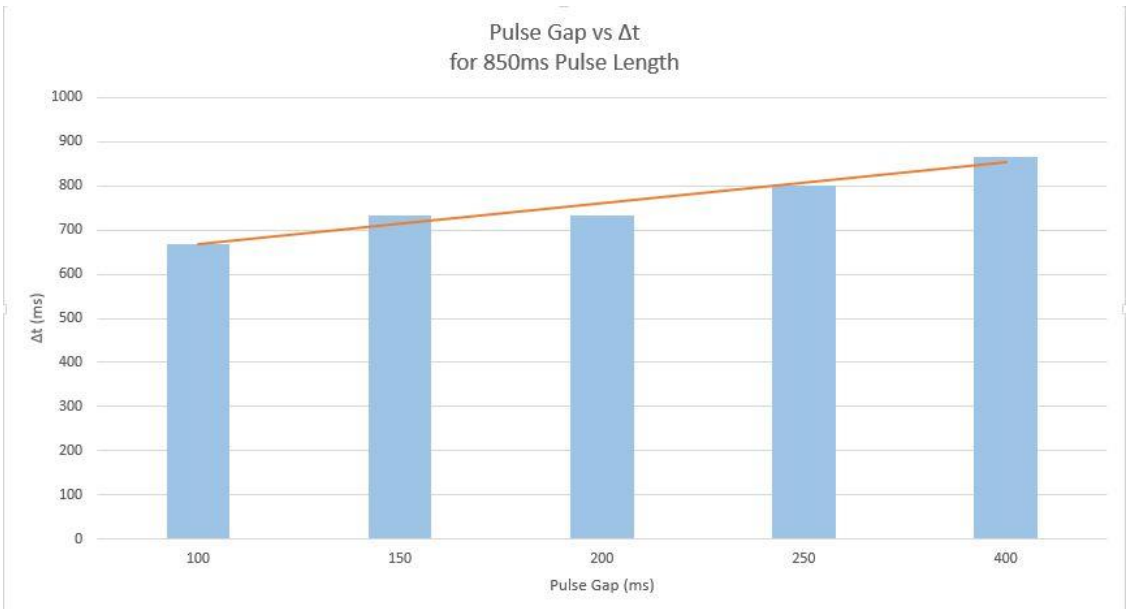
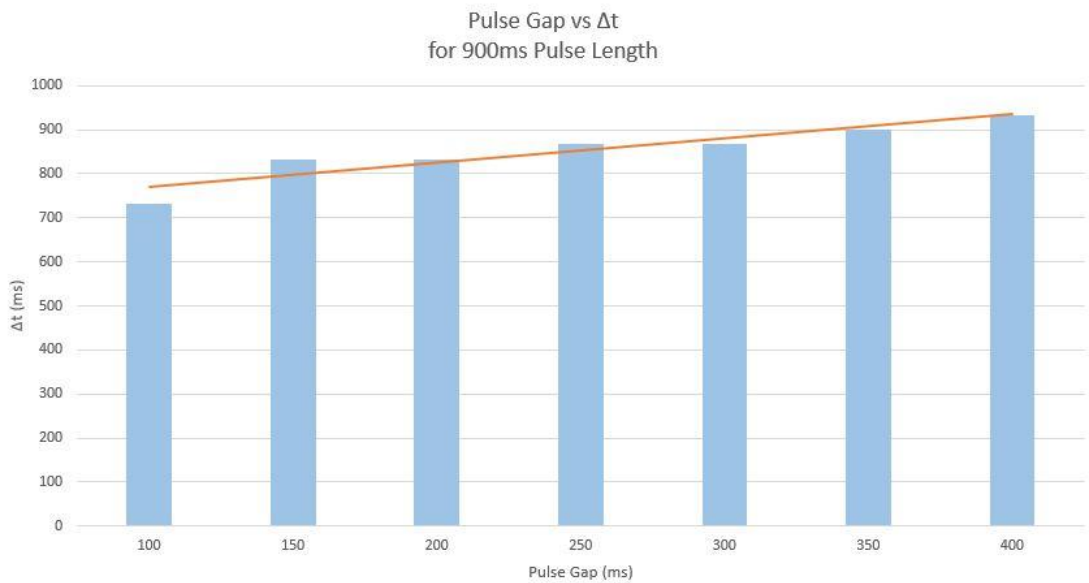

Circulation vs. Time
160
140
120
100
80
60
40
20
0
Circulation
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
Time (s)
Leading Vortex
Δt
Total trailing Vortex
Trailing vortex after Shedding
Shedding
Leading Vortex
Trailing Vortex
Secondary
Shedding


Pulse Gap vs Δt
for 750ms Pulse Length
600
500
400
300
200
100
0
Δt (ms)
100
200
220
240
300
350
450
Pulse Gap (ms)

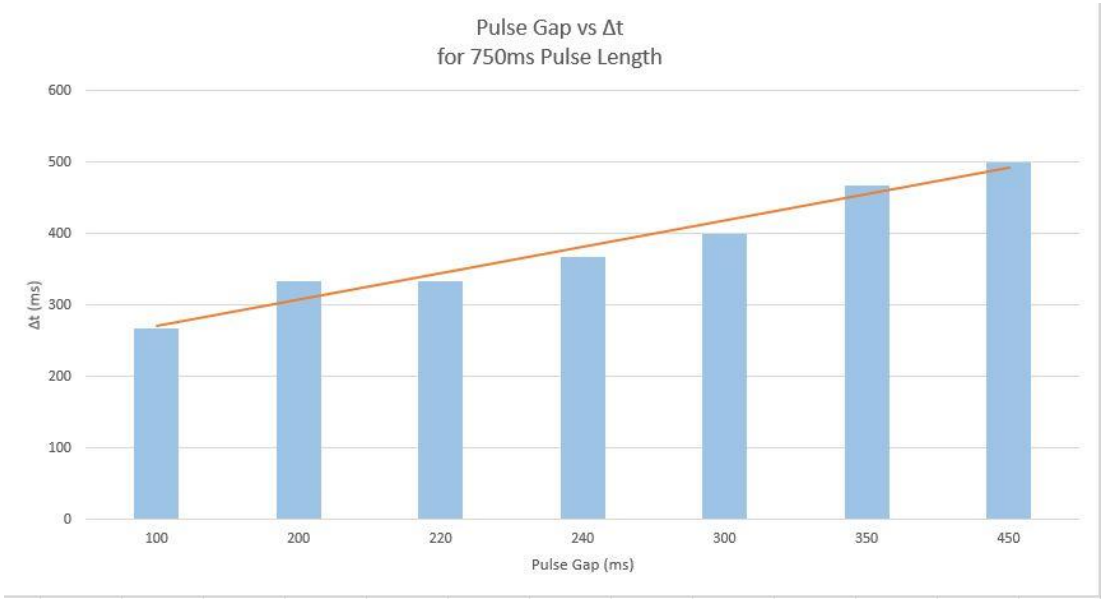

Pulse Gap vs Δt
for 800ms Pulse Length
600
500
400
300
200
100
0
Δt (ms)
120
160
180
200
240
260
Pulse Gap (ms)

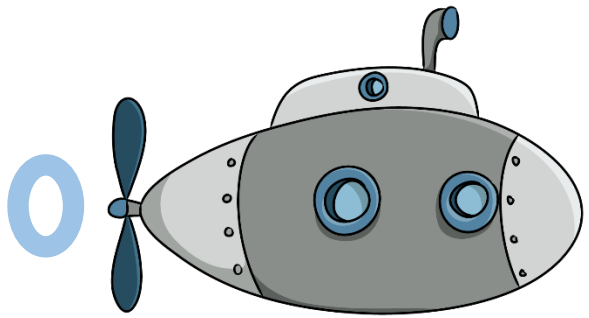

Pulse Gap vs Δt
for 850ms Pulse Length
1000
900
800
700
600
500
400
300
200
100
0
Δt (ms)
100
150
200
250
400
Pulse Gap (ms)


Pulse Gap vs Δt
for 900ms Pulse Length
1000
900
800
700
600
500
400
300
200
100
0
Δt (ms)
100
150
200
250
300
350
400
Pulse Gap (ms)

# Conclusion

- Examines the formation of consecutive vortex rings with varying size and frequency
- Quantifies the momentum transfer by evaluating the fluid circulation within the rings using DPIV
- Relates the time to maximum formation, $\Delta t$, to the time gap between rings



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