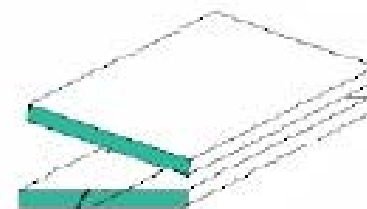
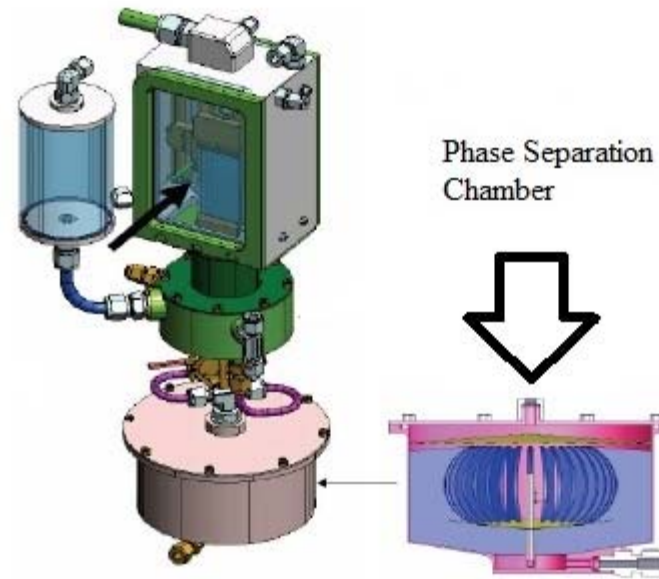


Capillary Fluidics in Microgravity

Claire DeVoe

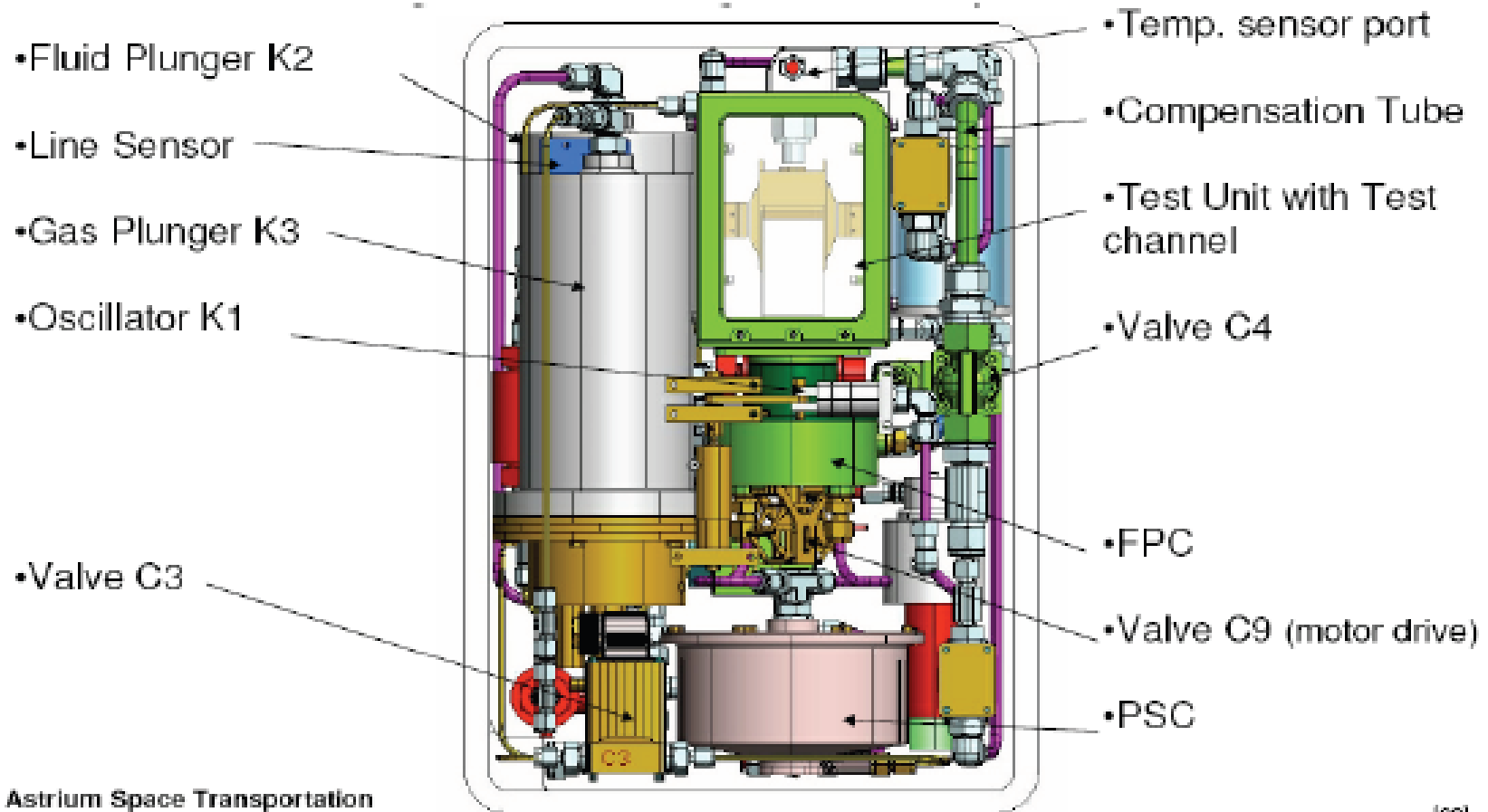
Mentor: Dr. Mark Weislogel

Fluids in Space

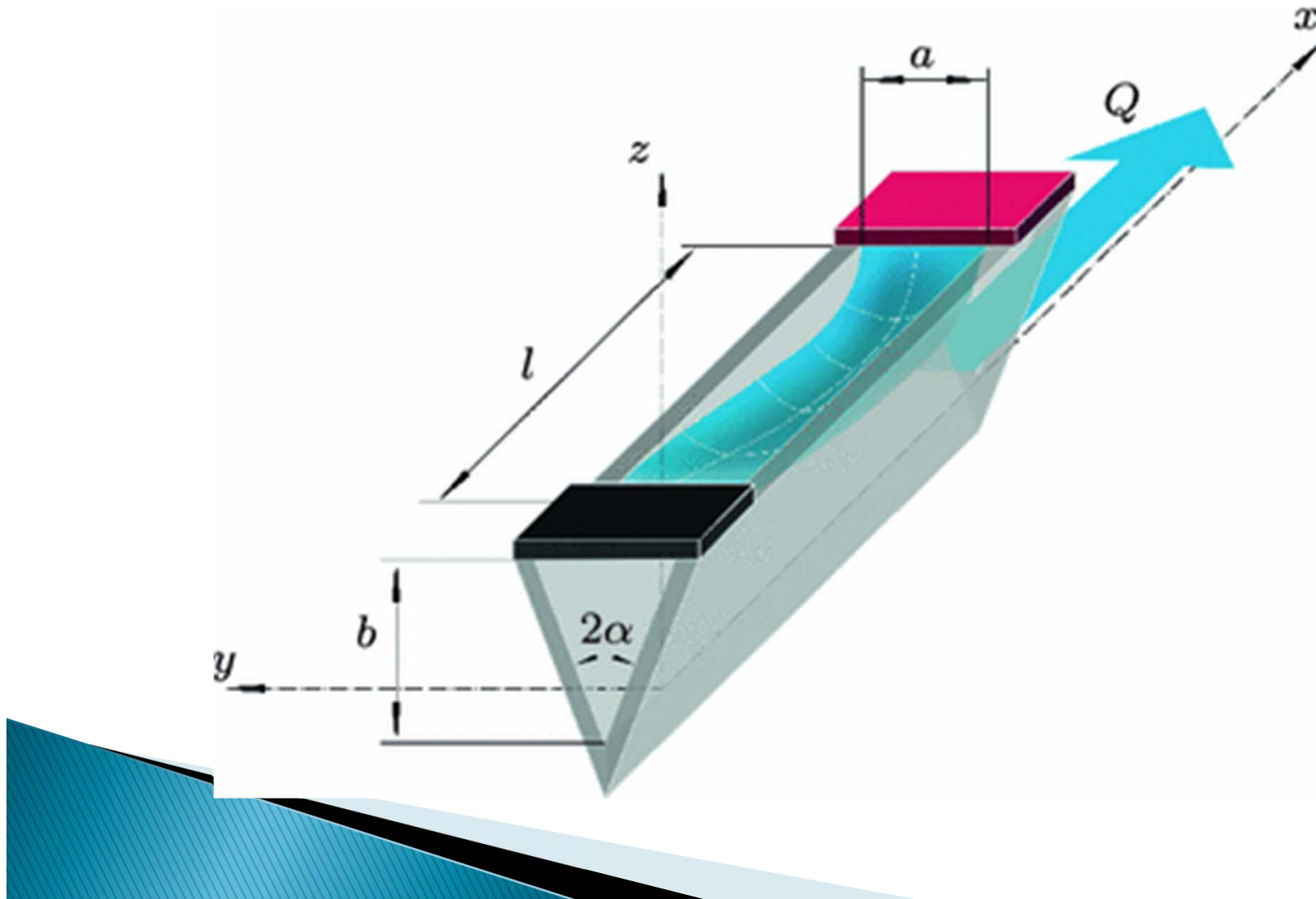


Wedge Channel

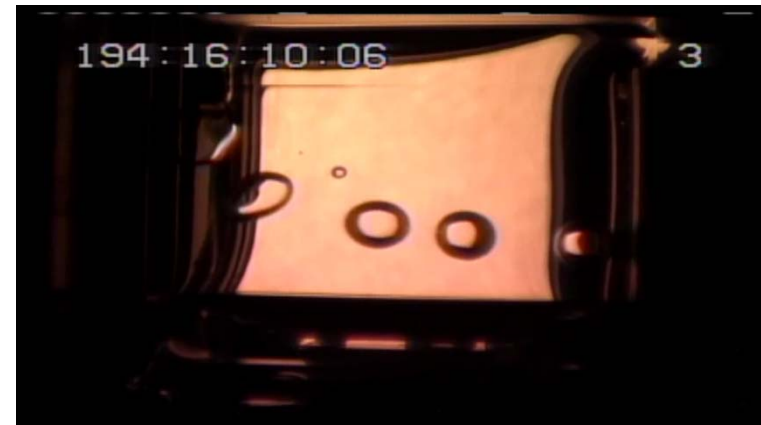
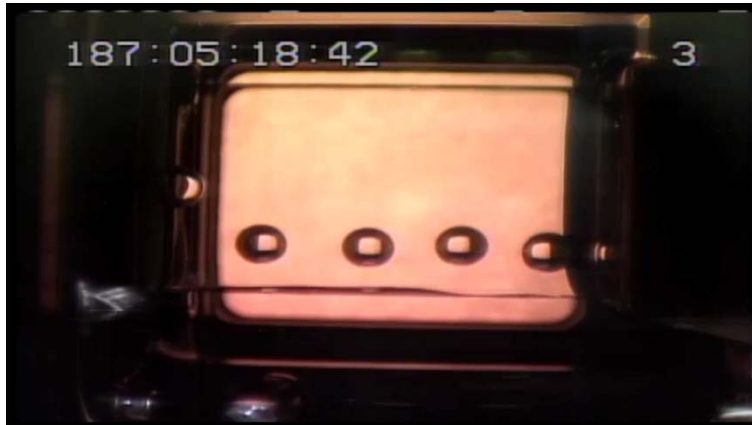
CCF on the ISS



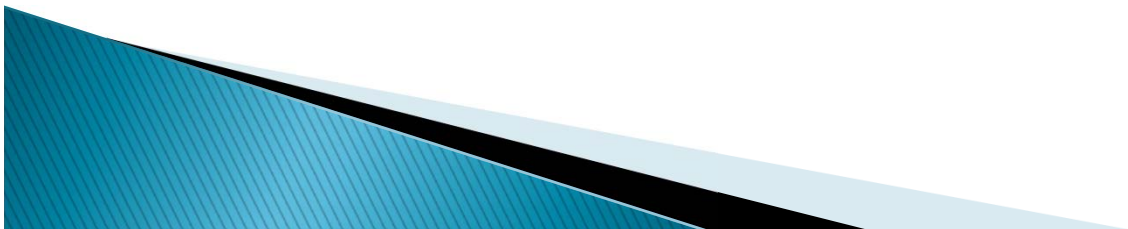
Test Channel



General Bubble Tests

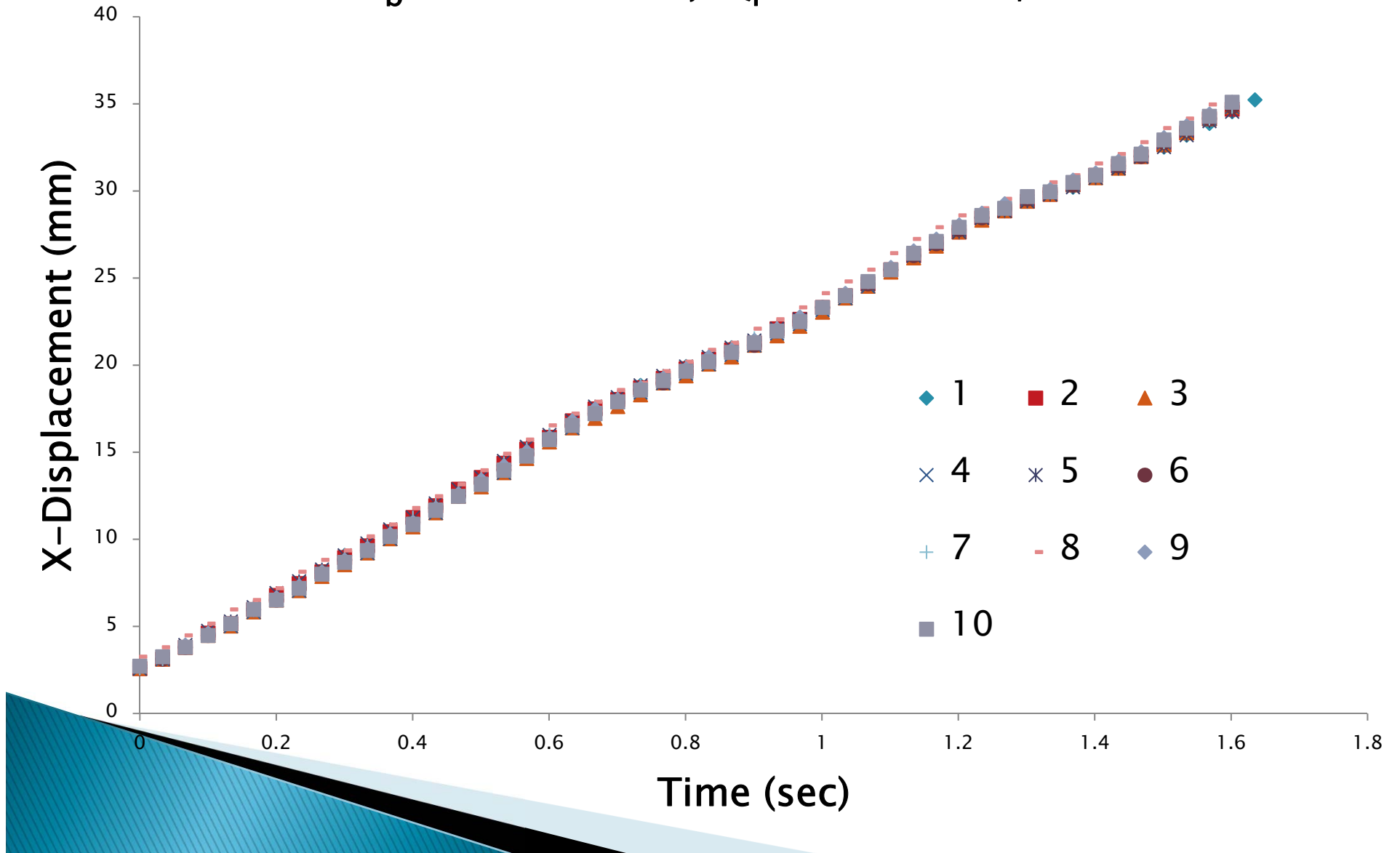


- Velocity Profile
- Exit Length
- Merger
- Ingestion
- Leak

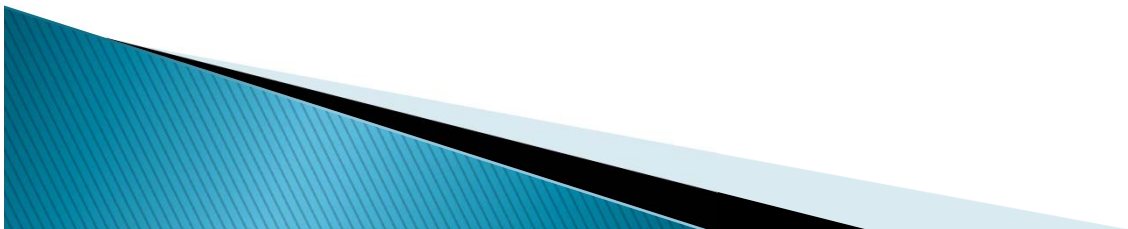
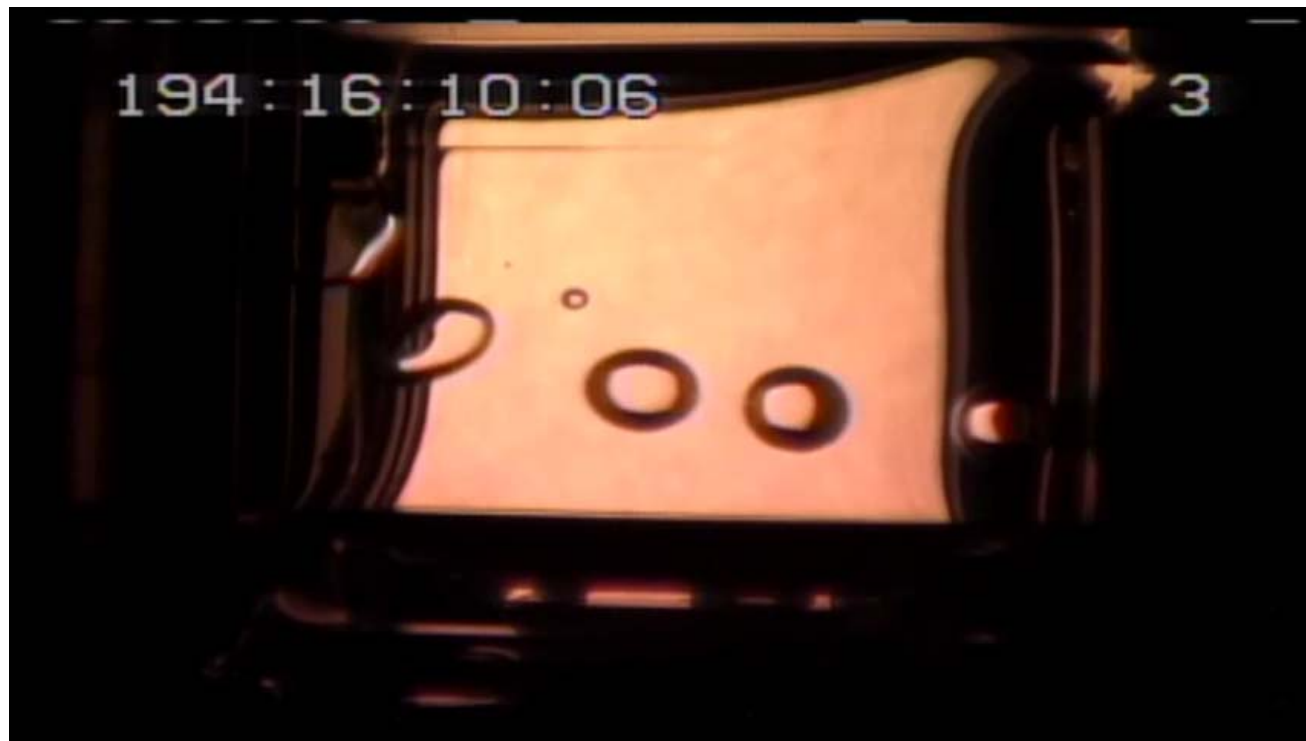


Bubble X-Displacement

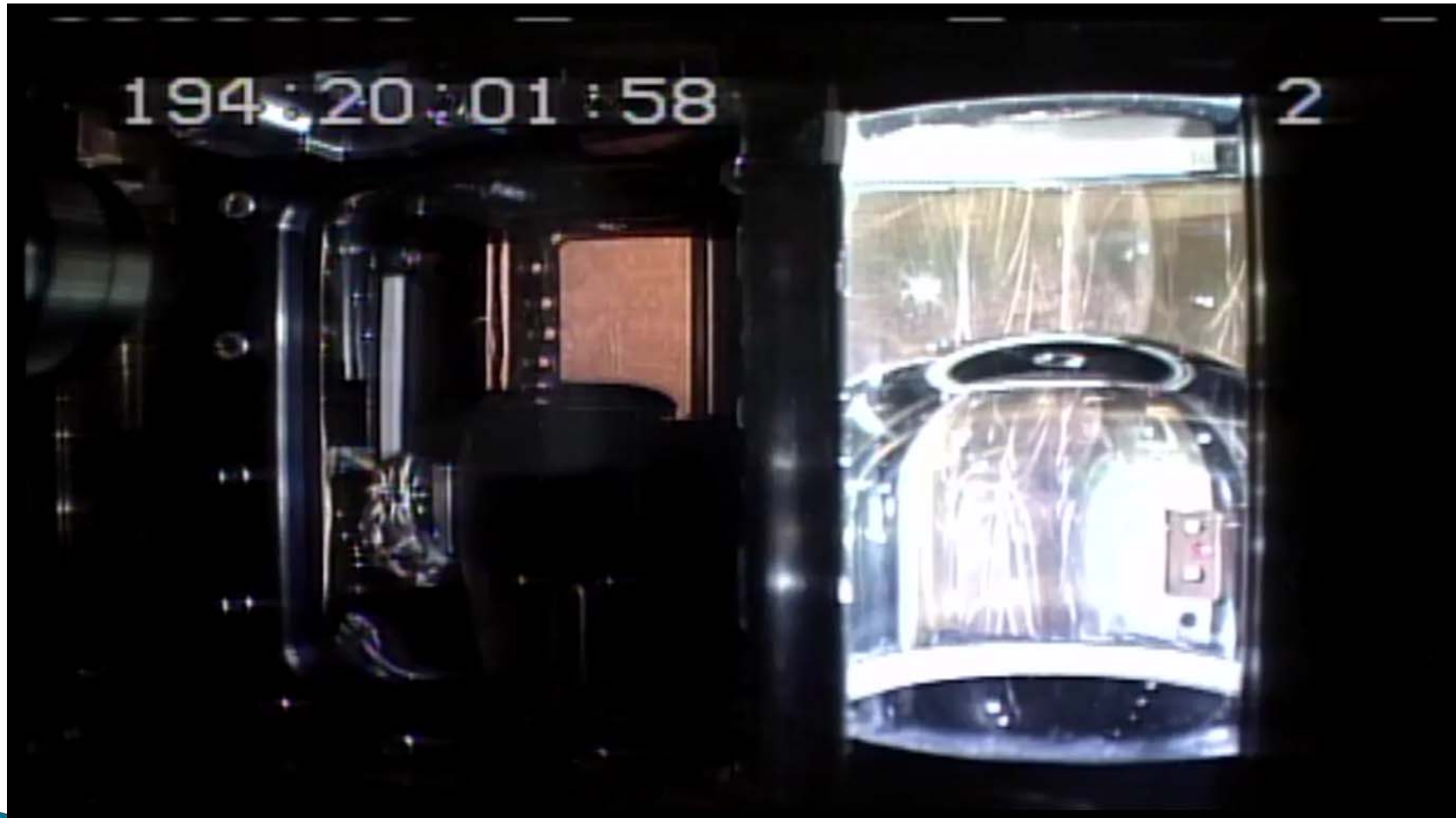
$$V_b = 0.112 \text{ mL}, Q_l = 1.38 \text{ mL/s}$$

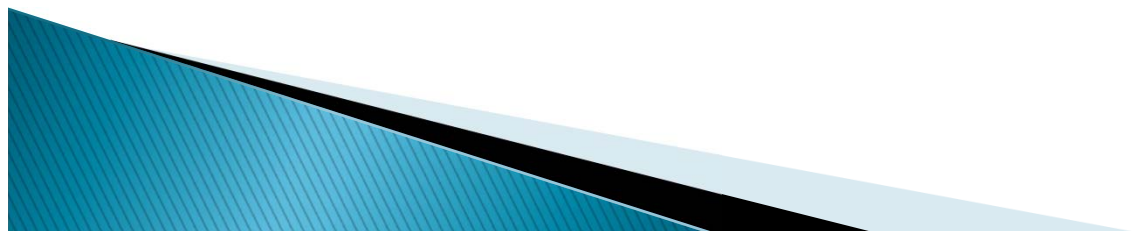
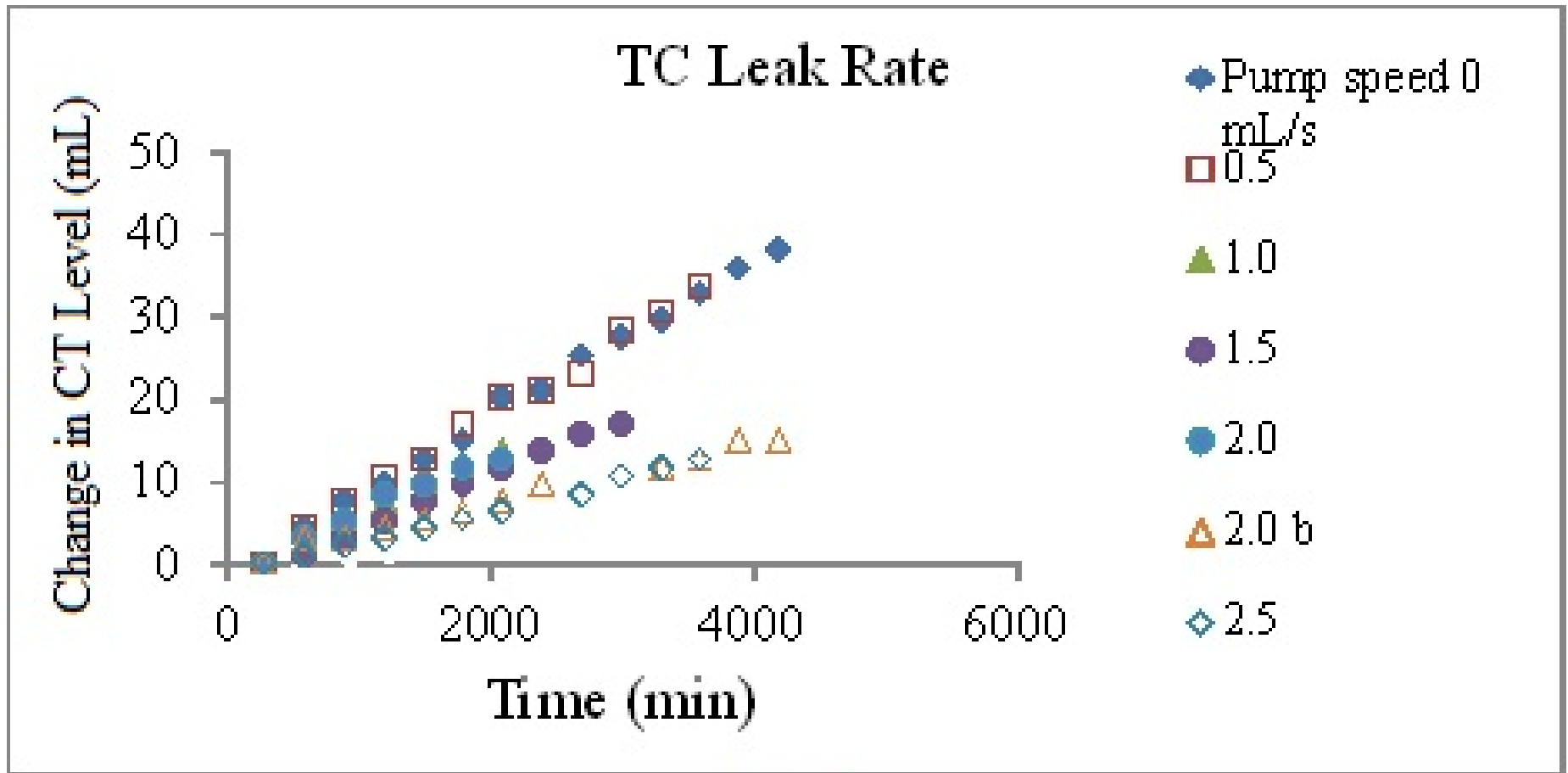


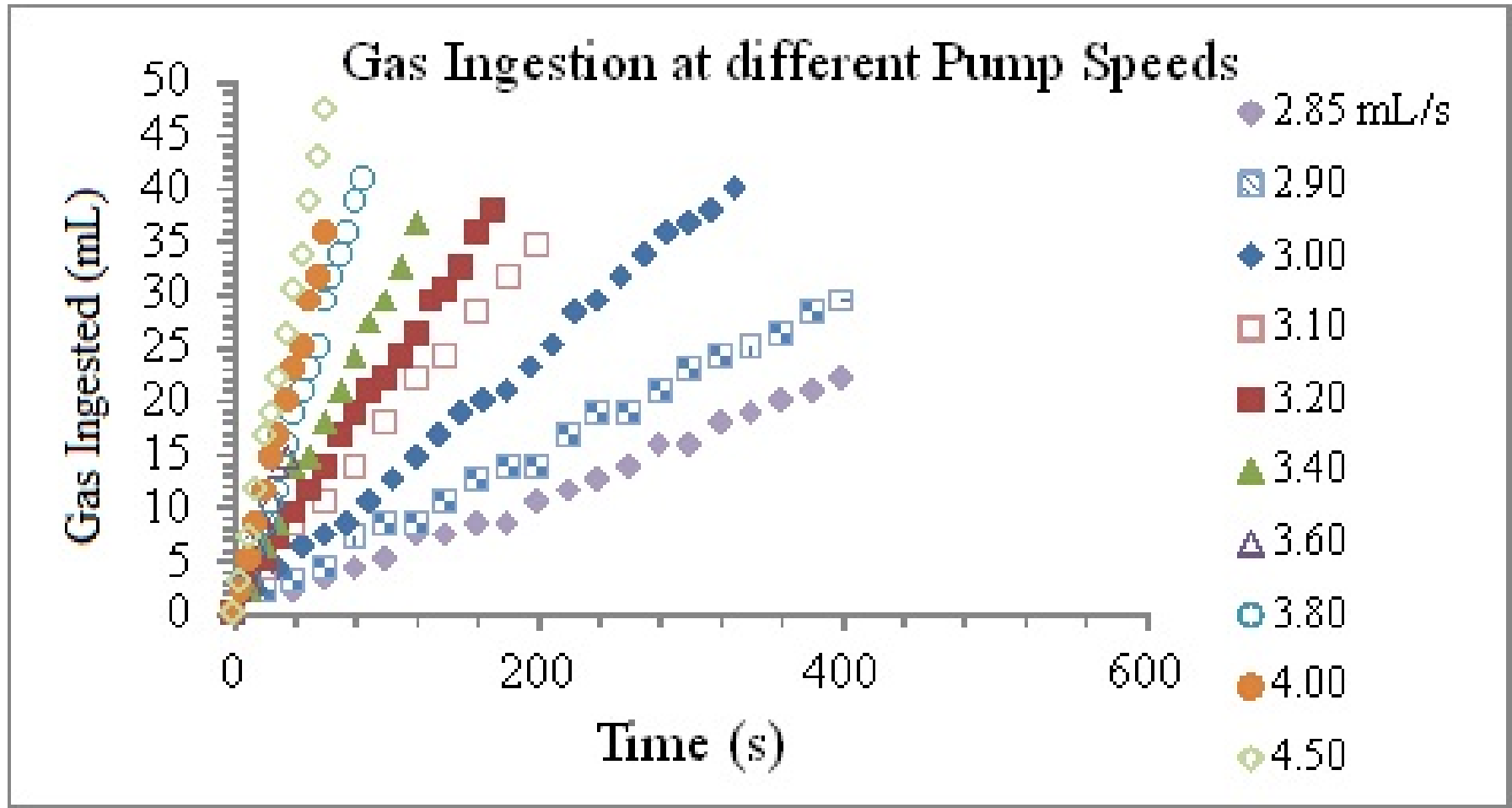
Test Channel Leak Rates

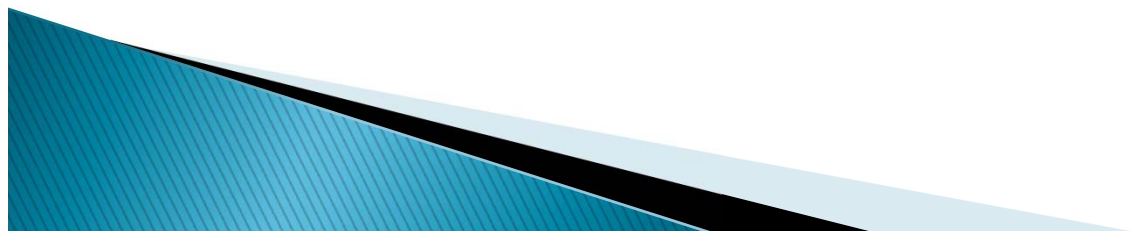
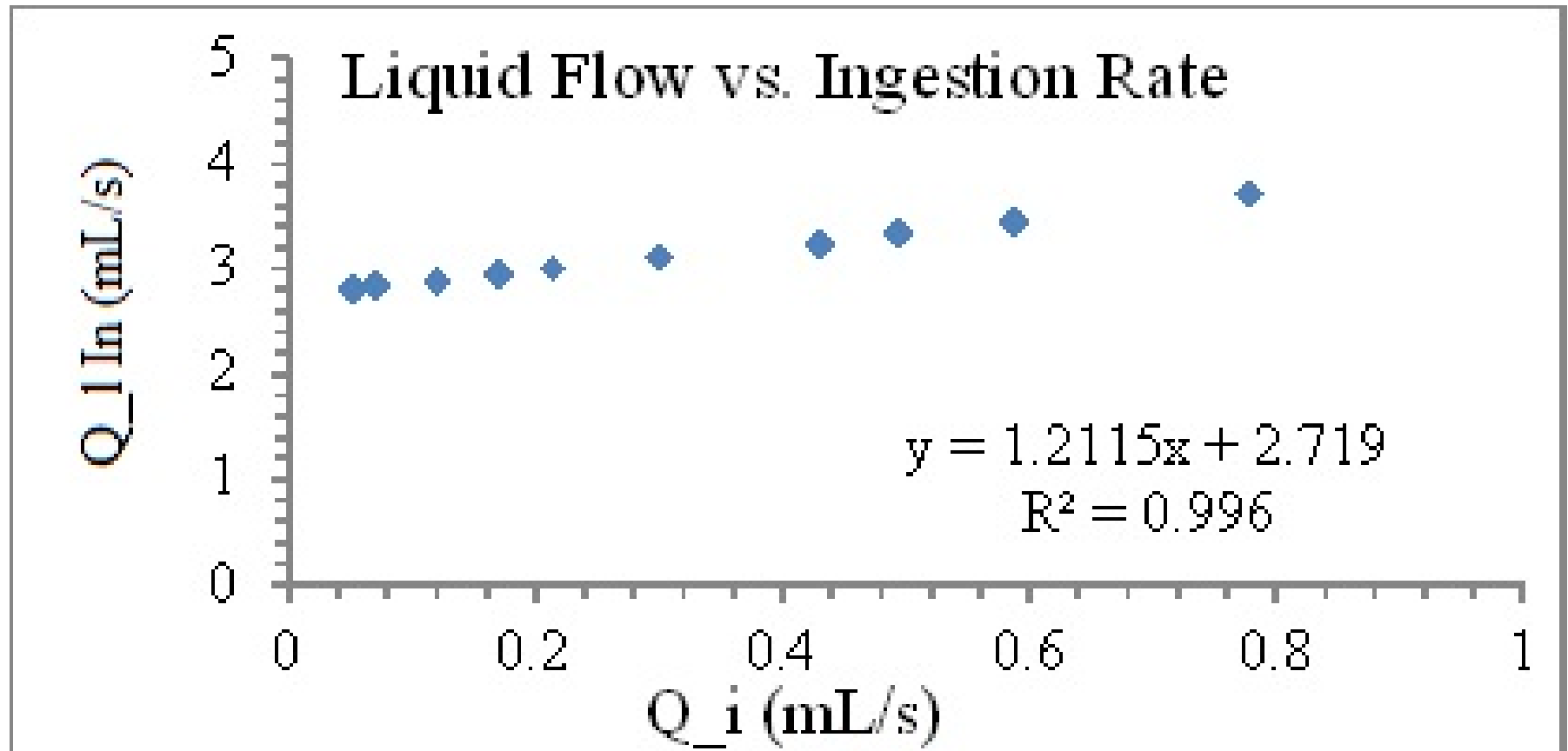


TC Leak Rates



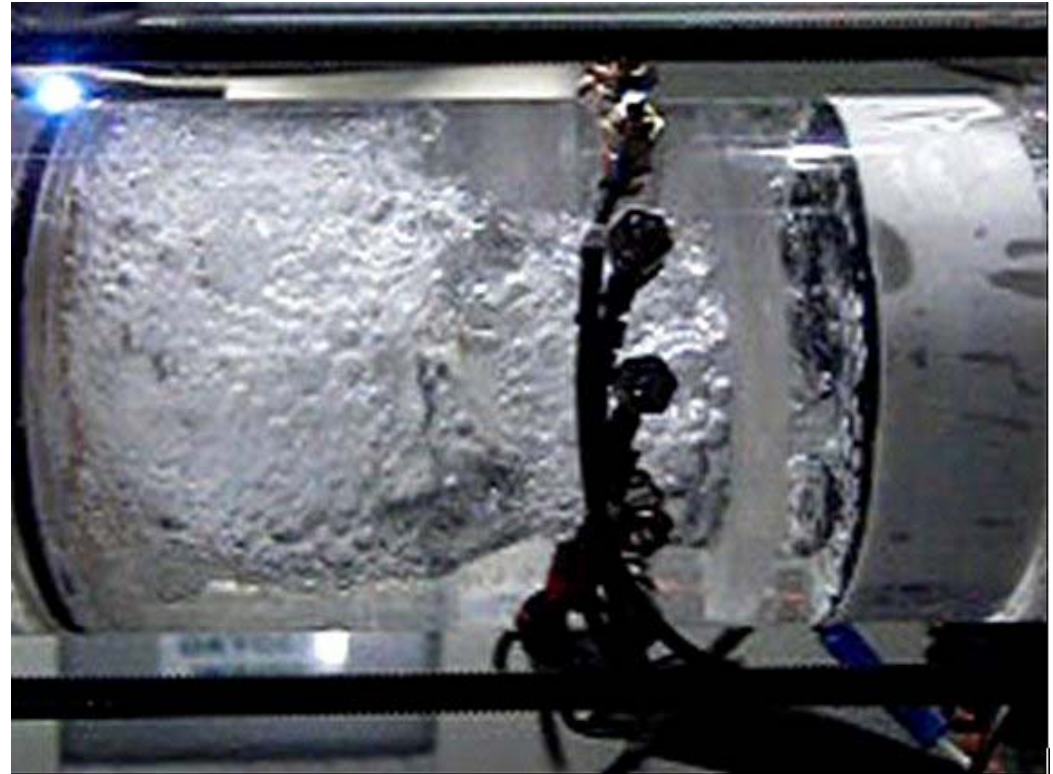






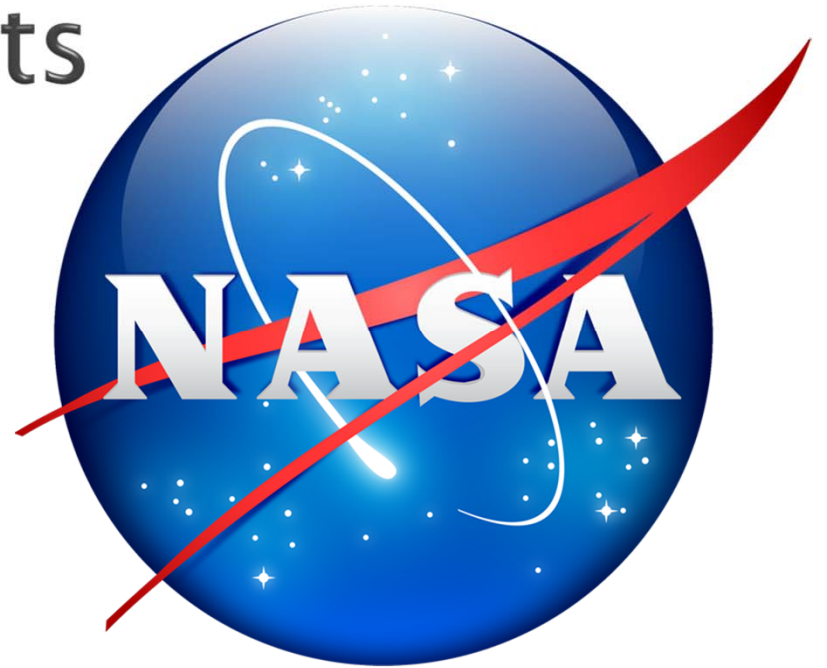
Applications

- ▶ Fuel Tanks
- ▶ Chemical Reactions
- ▶ Mixing Fluids
- ▶ Multi-phase fluid flows



Acknowledgements

- ▶ Dr. Mark Weislogel
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- ▶ PSU



FOR PRESENTATION ONLY

Questions?

