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## **EXPERIMENTAL FLUID MECHANICS**

### **Bio-Fluid Dynamics**

- Flow and oxygen transfer in a tissue-engineering bioreactor
- Fluid dynamics of arteries, veins and respiratory systems
- Fluid dynamics of flagellar/ciliary propulsion
- Study of bubbles in the presence of biomaterials

### **Bluff Body Aerodynamics**

- High angle of attack aerodynamics
- Flow past a rotating cylinder
- Flow past one or more cylinders with various cross-sectional shapes
- Flow past oscillating cylinders

### **Dynamics of Free Surface Flows and Bubble Dynamics**

- Coating flows inside a rotating cylinder
- Drop impacts onto solid and liquid surfaces
- Entrapment of air bubbles under an impacting drop
- Granular jets
- Micro-suspension of ink jet printing
- Study of (explosion) bubble dynamics and underwater shock

### **Flow in Micro-Tube**

- Study of flow friction involving a tube with characteristic dimension in the range of 2 to 100 microns

### **Flow Stability**

- Laminar-turbulent transition of shear flows

### **Fluid Transients**

- Pressure surges in fluid systems
- Study of check valves responses in multiple pump operations

### **Power-MEM Lubrications**

- Viscosity of fluids in the presence of particles
- Viscous heating

### **Turbulence Measurements**

- Concave surface boundary layer flows
- Effects of turbulence length scales on hot wire measurements
- Flow over dimpled surfaces
- Jets and wakes

- Near wall effects on hot wire and skin friction measurements
- Near wall turbulence measurements
- Water circulation and the scalar transport across the turbulent air-sea interface

#### **Unsteady Aerodynamics**

- Aerodynamics of flying insects
- Aerodynamics of heaving and pitching aerofoils
- Control of vortex breakdown

#### **Vortex Dynamics**

- Vortex interactions
- Vortex rings