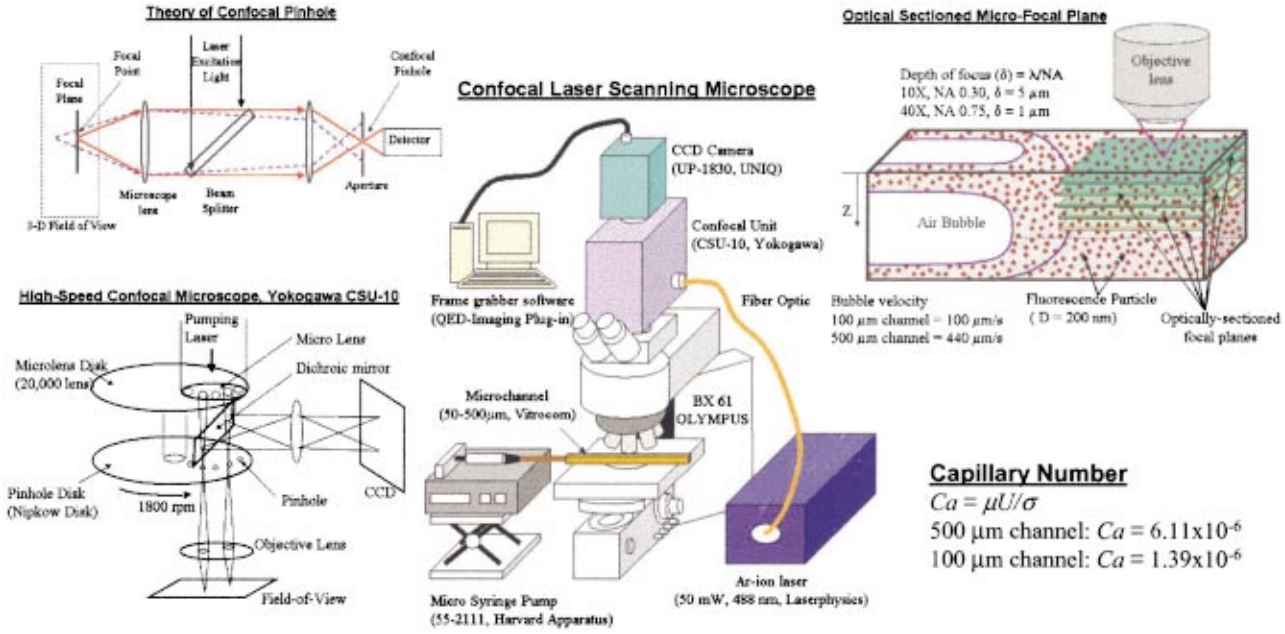

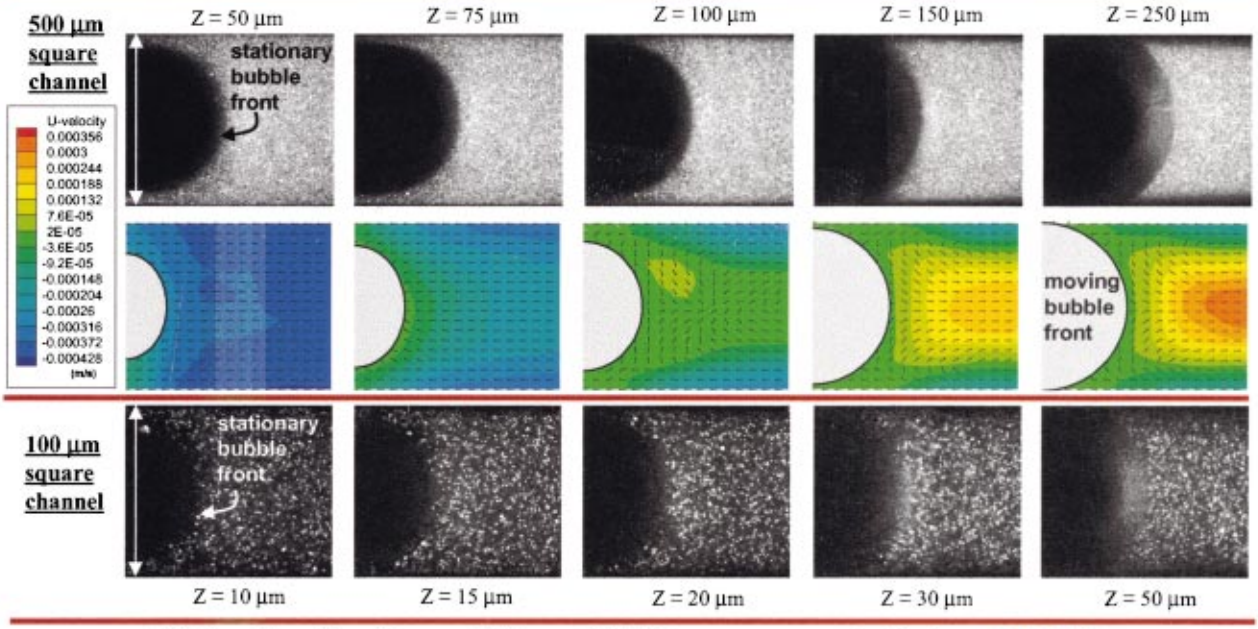

Optically–Sectioned Micro PIV Measurements Using CLSM*

- Full-field flow mapping at the bubble front advancing in a rectangular cross-sectioned microchannel -

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The Confocal Laser Scanning Microscope* (CLSM) enables optically sectioned μ-PIV measurements with extremely shallow field-of-depth of 1.0-μm and a lateral resolution better than 0.5-μm. Hollow sphere, 200-nm fluorescent particles are used as tracers to achieve a full-field, optically sectioned flow velocity vector mapping, for the region at the gas bubble front, advancing in two different microchannels of 500-μm by 500-μm (Capillary number = 6.11×10^{-6}), and 100-μm by 100-μm ($Ca = 1.39\times10^{-6}$) square cross-sections. This work is supported by the NASA OBPR-Fluid Physics Research Grant (NAG3-2712) and the CLSM was purchased by the Permanent University Facility Award from Texas A&M University.