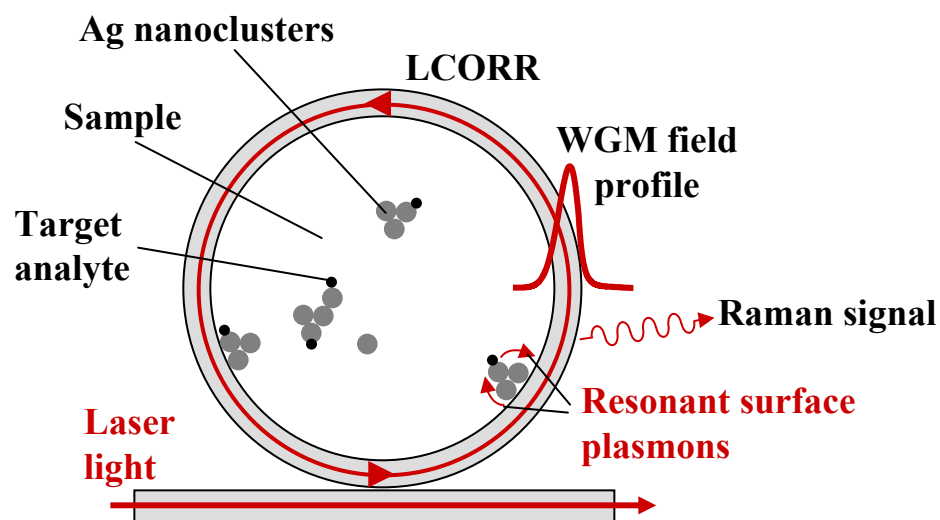


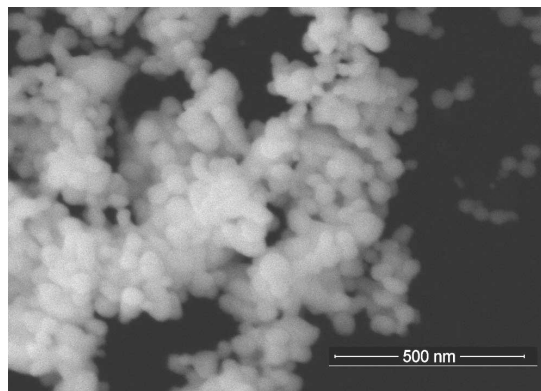
Single Molecule Raman Detection with a Composite Microresonator and Metal Nanocavity System

Xudong Fan (University of Missouri – Columbia)

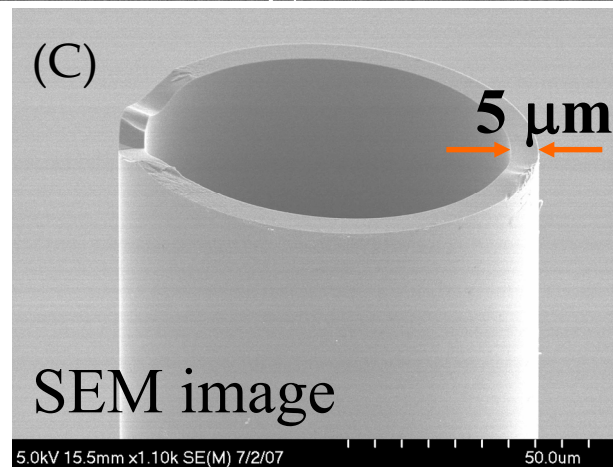
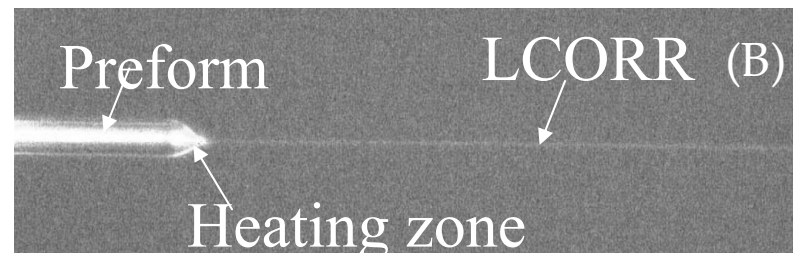
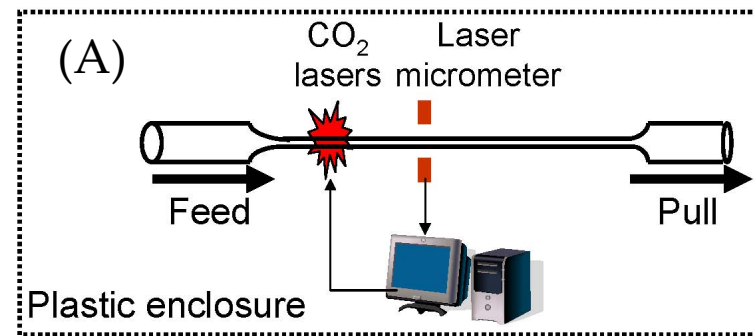


Concept: Raman signal is enhanced multiplicatively by both metal nanoclusters and a ring resonator
LCORR: Liquid Core Optical Ring Resonator

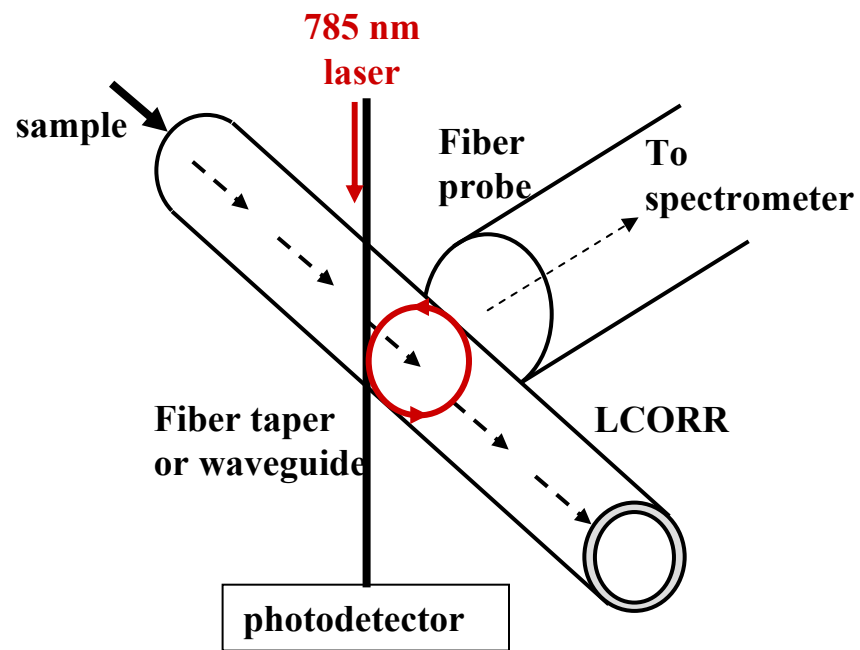
Silver Nanoclusters



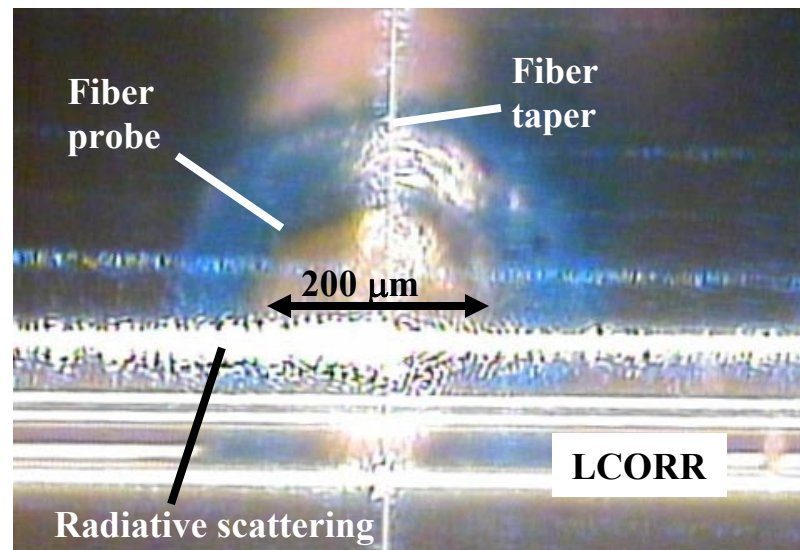
Fabrication of Liquid Core Optical Ring Resonator (LCORR)



Experimental Setup

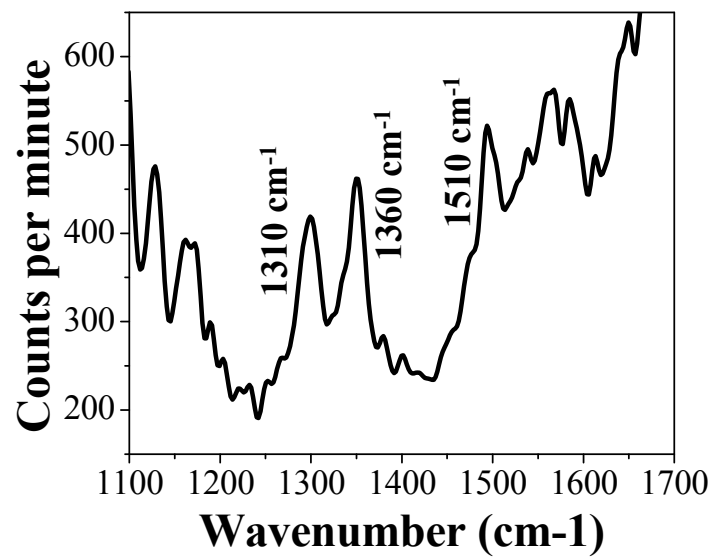


(A)



(B)

Experimental Results



Analyte: R6G at 400 pM

The Raman signal is likely from only a few hundreds of R6G molecules