

# SERS CHIP 3D-RCW

## 3D Random Crossed-Wire SERS chip

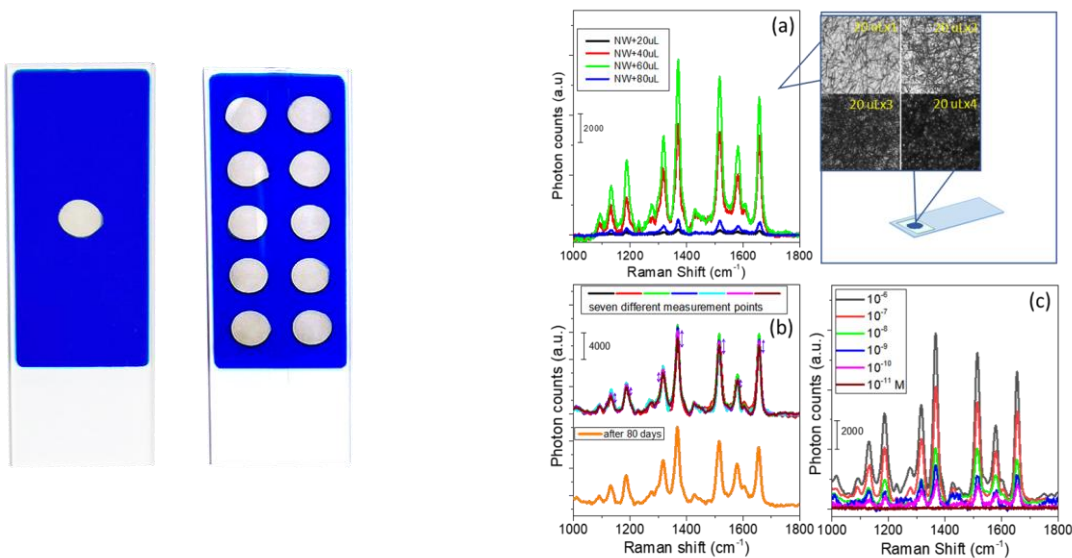
### INTRODUCTION

PTT introduces a 3D nanostructured SERS chip: the silver nanowire 3D random crossed-wire woodpile (**3D-RCW**) structure. The 3D-RCW provides abundant “antenna” and “hot spot” effects, which enhance both surface-enhanced Raman scattering (SERS) and plasmon-enhanced fluorescence (PEF).

The chip has been granted a Taiwan patent (I750718) and a U.S. patent application is pending (100573-US-PA).

The **RCW** chip is an ultrasensitive platform for Raman and fluorescence-based detection, enabling micro-volume analysis. Successful measurements of pesticides (thiram, carbaryl, paraquat, fipronil) demonstrated detection limits within the range of 5  $\mu\text{M}$ –0.05  $\mu\text{M}$  in 20  $\mu\text{L}$  samples.

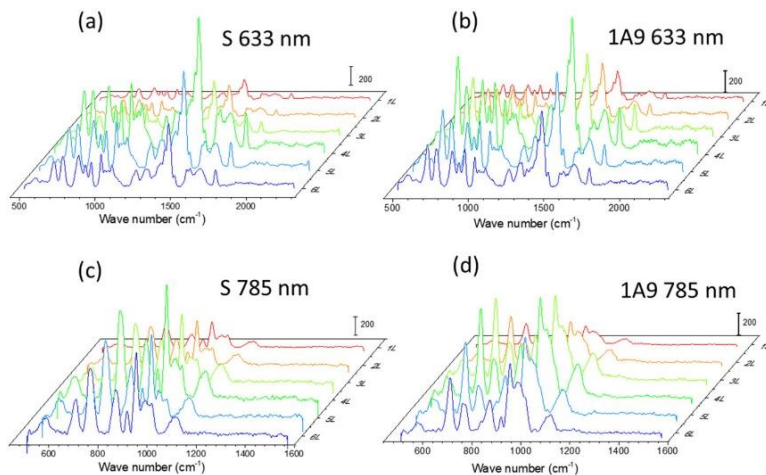
**3D-RCW** SERS chip is a very sensitive substrate, A single drop of sample is sufficient to obtain a Raman spectrum with the 3D-RCW SERS chip..



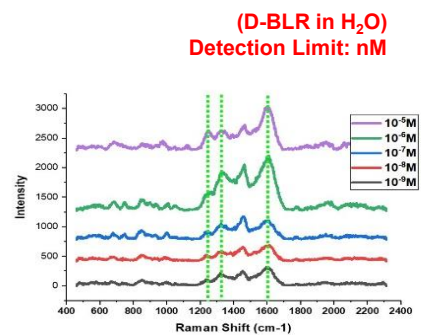
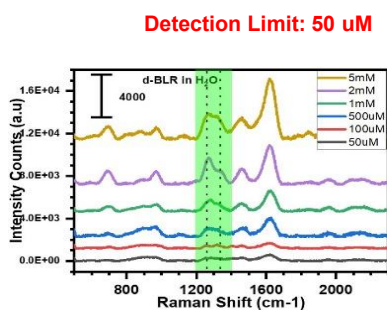
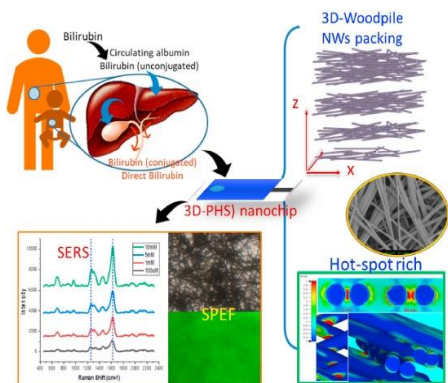
	3D-RCW-1	3D-RCW-10
Order Information	Nanostructure Chip - Material : Silver Nanowire 3D random crossed-wire woodpile - Active area : round 5mm - 1 test / set	Nanostructure Chip - Material : Silver Nanowire 3D random crossed-wire woodpile - Active area : round 5mm - 10 tests / set

# APPLICATION

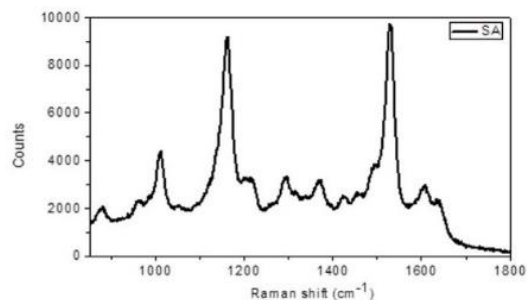
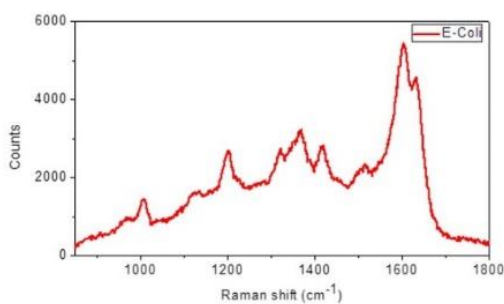
## SARS-Cov-2 S-protein vs Antibody (1A9-protein)



## D-bilirubin detection (LOD: $10^{-9}$ M, in H<sub>2</sub>O detection limit: nM)



## Microorganism application - E-Coli & S.aureus



### Reference:

\*\*Appl. Phys. Rev. 10, 041403 (2023); doi: 10.1063/5.0155256

\*\*Biosensors and Bioelectronics Volume 213, 1 October 2022, 114440