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### Research Interests

#### 1. Surface enhanced Raman scattering (SERS):

A. Fabricating novel nanostructured SERS substrates for high biomaterial detection and selection B. Electrical field simulation for designing high performance SERS substrates C. Synthesis of novel antifouling materials for fabricating biocompatible SERS substrates

#### 2. Inorganic/organic optoelectronic devices:

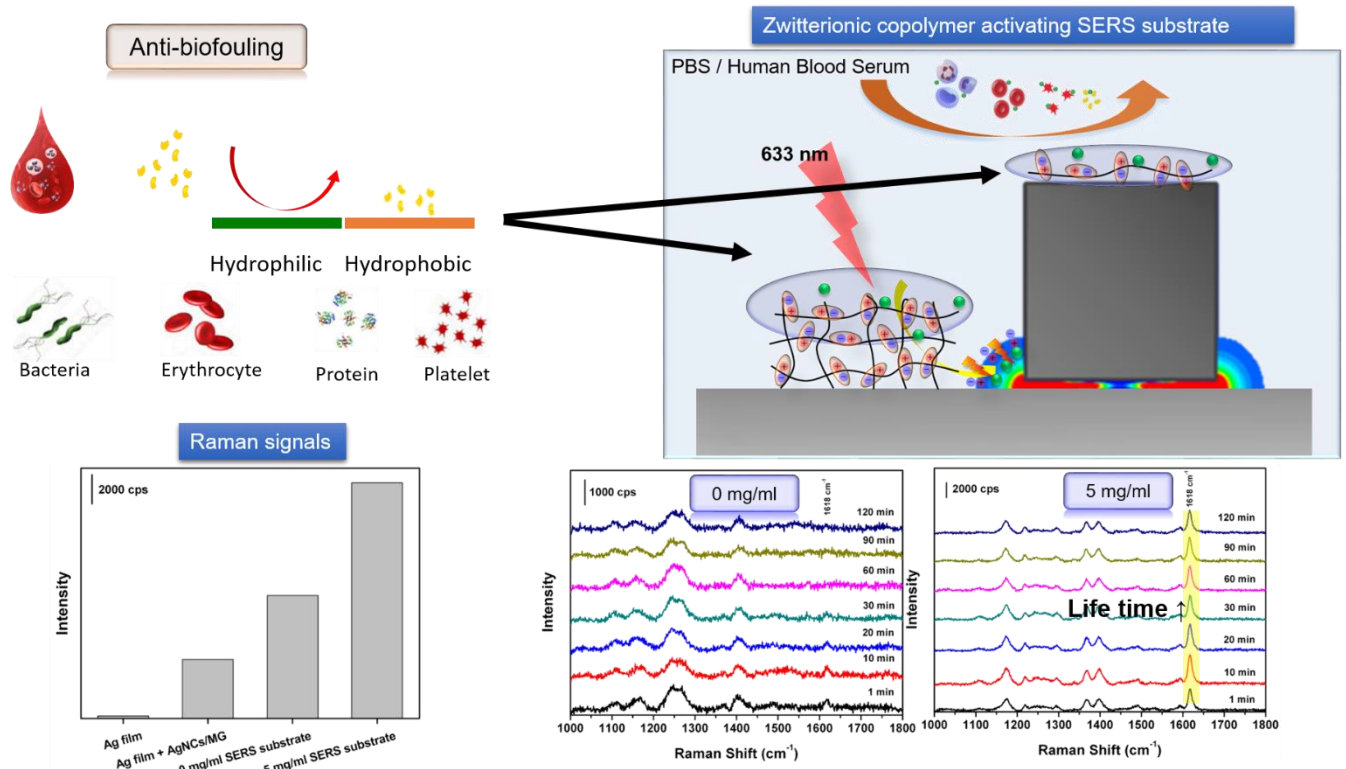
A. High efficient and stable perovskite/organic solar cells via interfacial modification B. Solution process inorganic/organic optoelectronic devices for large area production C. Novel multifunctional interfacial layers for high efficient polymer light-emitting diodes

### Representative Publications

1. C. H. Wu, K. W. Tsai, W. J. Huang, C. Y. Wu, T. Y. Chen, T. F. Guo, Y. J. Hsu and T. C. Wen, Adv. Mater. Inter., 2016. (In Press)
  2. K.-W. Tsai, C.-C. Chueh, S. T. Williams, T.-C. Wen and A. K. Jen, J. Mater. Chem. A, 2015, 3, 9128-9132.
  3. Y.-N. Chou, Y. Chang and T.-C. Wen, ACS applied materials & interfaces, 2015, 7, 10096-10107.
  4. S.-C. Cheng, T.-C. Wen and Y.-C. Lan, RSC Advances, 2014, 4, 44457-44461.
  5. S.-C. Cheng and T.-C. Wen, Mater. Chem. Phys., 2014, 143, 1331-1337.
  6. C.-H. Wu, C.-Y. Chin, T.-Y. Chen, S.-N. Hsieh, C.-H. Lee, T.-F. Guo, A. K.-Y. Jen and T.-C. Wen, J. Mater. Chem. A, 2013, 1, 2582-2587.
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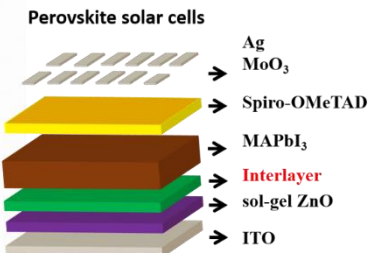
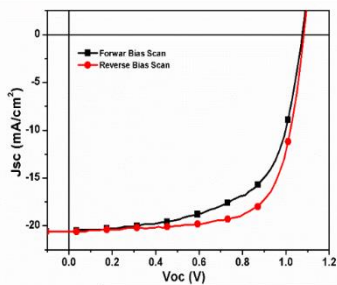
# 1. Surface enhanced Raman scattering (SERS):

## In vitro Detection of Biomolecular via SERS



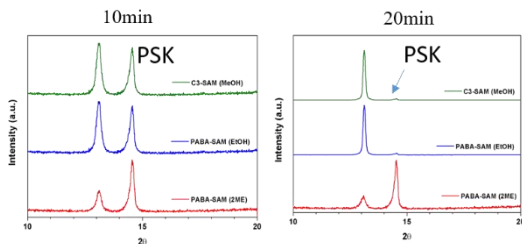
# 2. Inorganic/organic optoelectronic devices:

## High efficient and hysteresis less perovskite solar cells

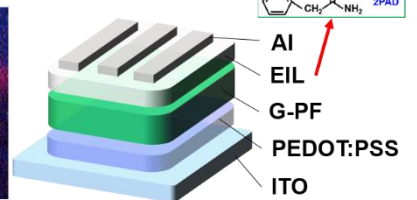
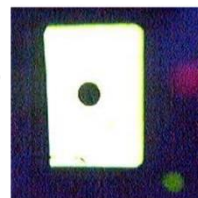


	Voc (V)	Jsc (mA/cm <sup>2</sup> )	FF (%)	PCE (%)
Forward Scan	1.08	20.62	63.26	14.05
Reverse Scan	1.09	20.59	69.71	15.67

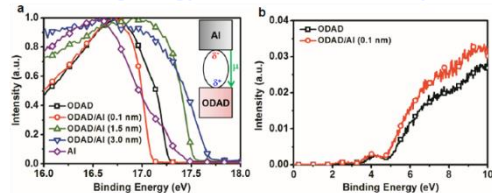
## Thermal stability enhancement via interfacial modification



## High efficient polymer light-emitting diodes



## Reducing energy barrier via interfacial dipole



## Enhancing device performance via interfacial layer

