



### 有機合成化學



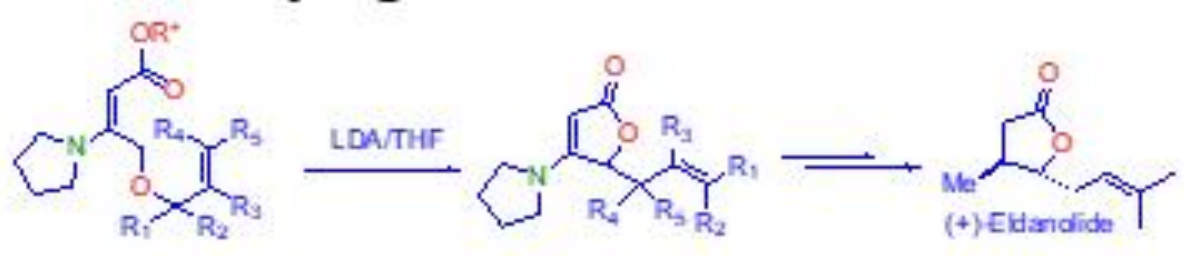
李瑜章 教授 Professor Yu-Jang Li, Ph.D.

Research Area: Asymmetric Synthesis



#### Research Interests :

- Chiral [2,3]-Wittig rearrangement of  $\gamma$ -allyloxy substituted vinylogous urethane enolates.



- [3,3]/[1,3]-Claisen rearrangement of  $\gamma$ -allyloxy substituted vinylogous urethanes.



- Tandem Cope elimination/1,3-dipolar cycloaddition reaction



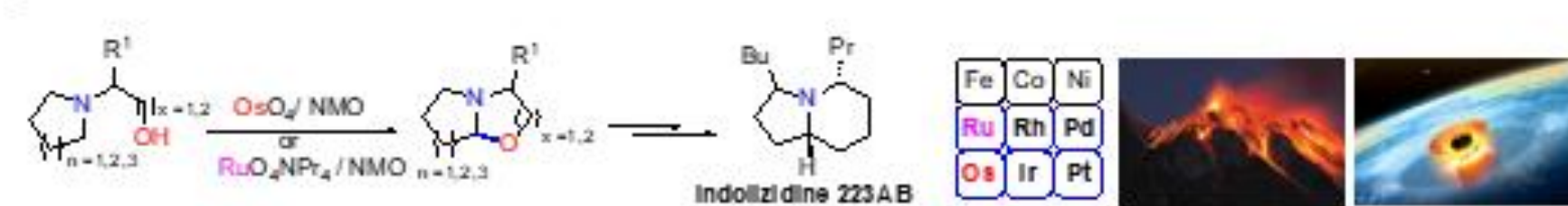
- Synthesis of Polysubstituted Oxetanes



- Synthesis of Biologically active Natural Product

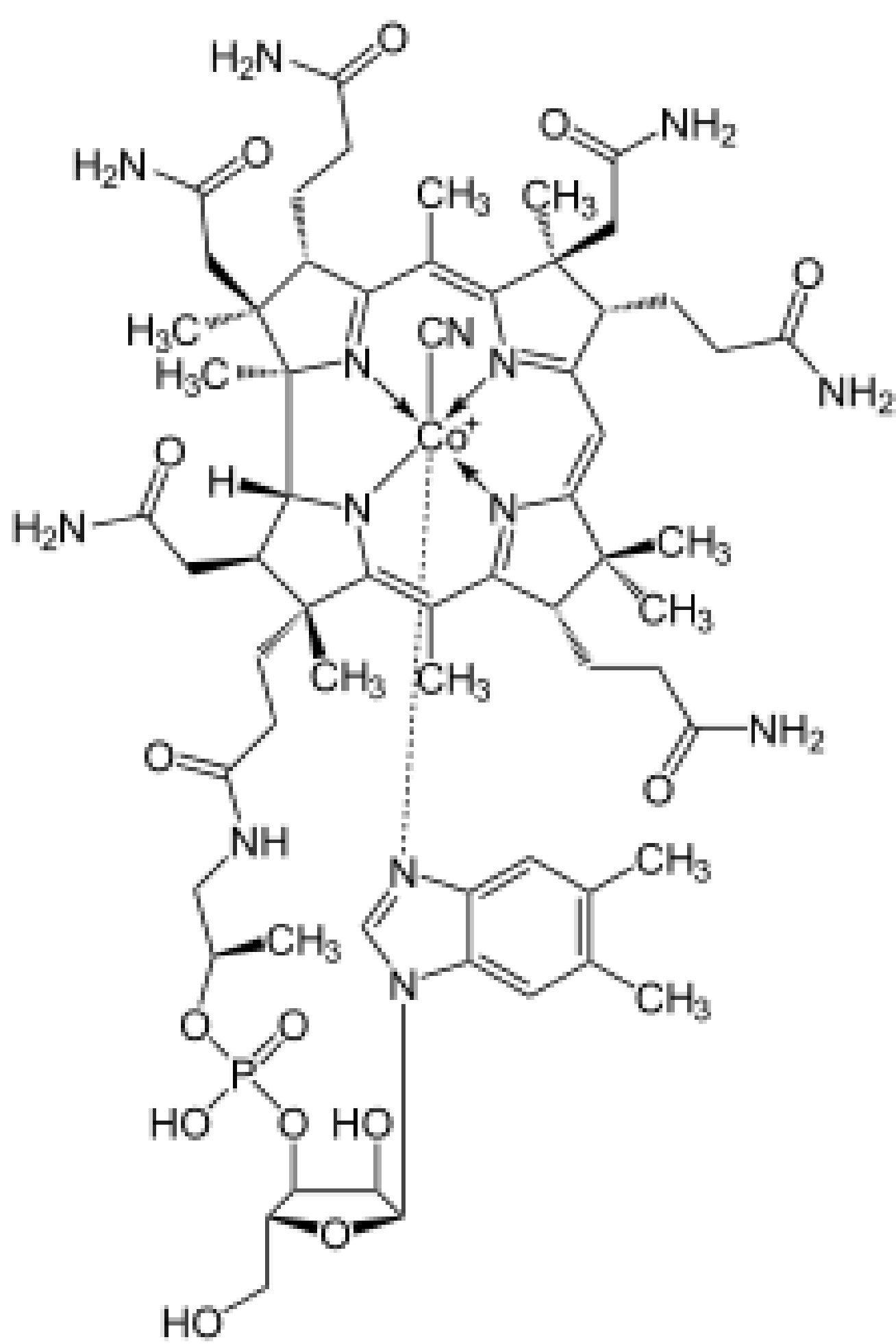
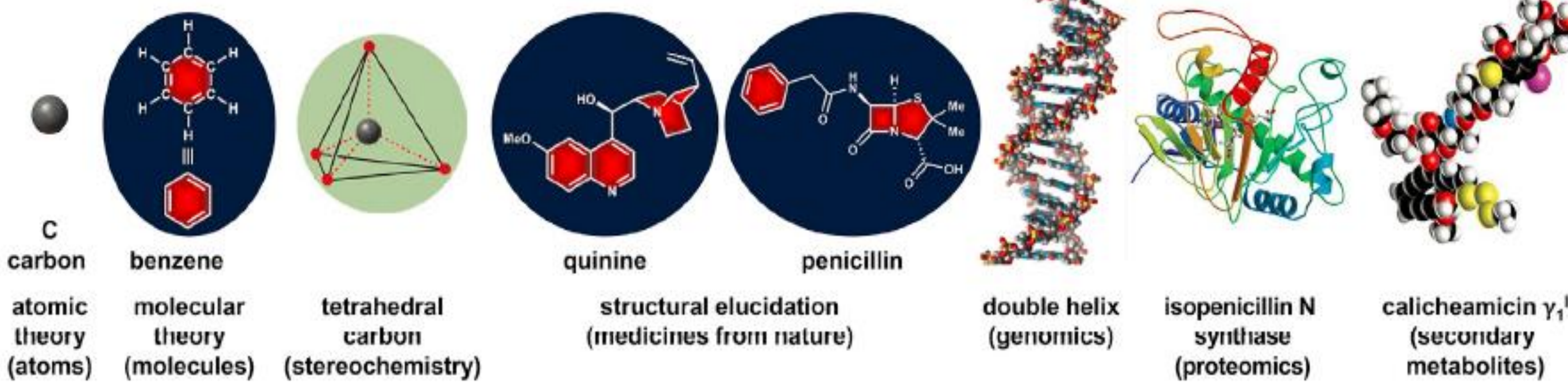
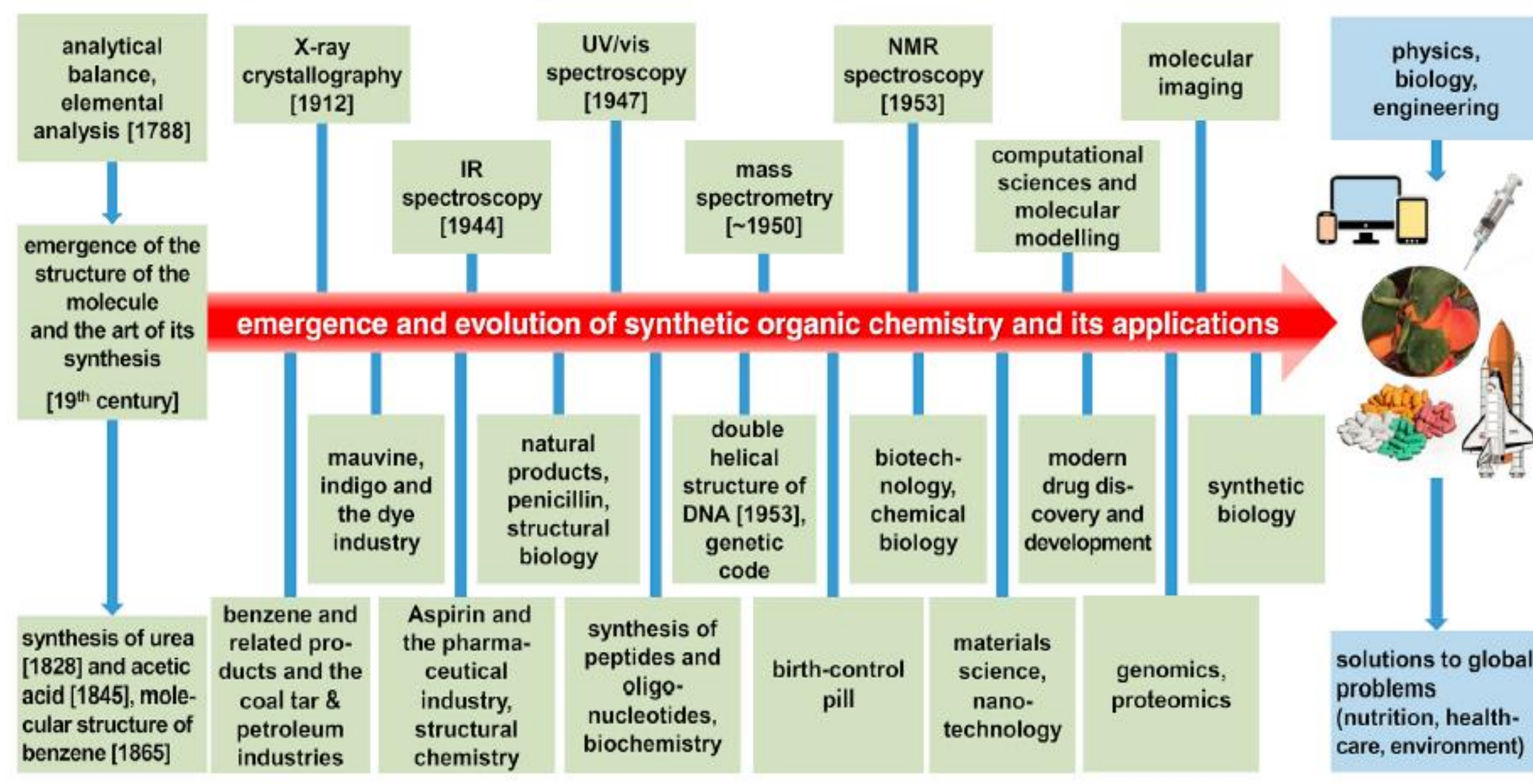


- OsO<sub>4</sub> and TPAP (RuO<sub>4</sub>·Pr<sub>4</sub>N<sup>+</sup>) mediated oxidative cyclization of cyclic aminoalcohols.



#### Publications:

- Total synthesis of Indolizidine Alkaloids (-)-167B, (-)-209I, and (-)-223A by Using a Common Tricyclic Lactone. Yu-Jang Li, \* Chung-Chien Hou, and Kuei-Chen Chang. *Eur. J. Org. Chem.* **2015**, 1659-1663.
- Stereoselective Synthesis of 2,3,4-highly Substituted Oxetanes by Intramolecular C-C Bond Forming Michael Addition, Guo-Ming Ho and Yu-Jang Li\*. *Chem. Commun.* **2016**, 52, 12108-12111.
- anti-Selective aldol reactions of chiral alcohol-substituted  $\gamma$ -benzyloxy vinylogous urethanes and the synthesis of 3-benzyloxy-4-hydroxyalkane-2-ones. Yu-Jang Li\*, Chuan-Chung Chung, Pin-Zu Chen. *Tetrahedron: Asymmetry* **2017**, *28*, 1573-1581.
- Tandem [1,2]-Wittig Rearrangement/Lactonization of  $\gamma$ -benzyloxy vinylogous urethanes: Application to the Synthetic studies of Maculalactone A, Planchol C and  $\gamma$ -Lycorane. Guo-Ming Ho, Yu-Jang Li\*. *Asian J. Org. Chem.* **2018**, *7*, 145-149.
- C-H Functionalization of Amino Alcohols by Osmium Tetroxide/NMO or TPAP/NMO: Protection Group-Free Synthesis of Indolizidines (-)-223AB and 3-epi-(-)-223AB. Wei-Lun Chen, Lee-Ya Wang, Yu-Jang Li\*. *Eur. J. Org. Chem.* **2020**, 103-107.



The total synthesis of vitamin B<sub>12</sub> marked a major achievement in organic chemistry.



陳清玉 副教授 Associate Professor

Ching-Yuh Chern, Ph.D

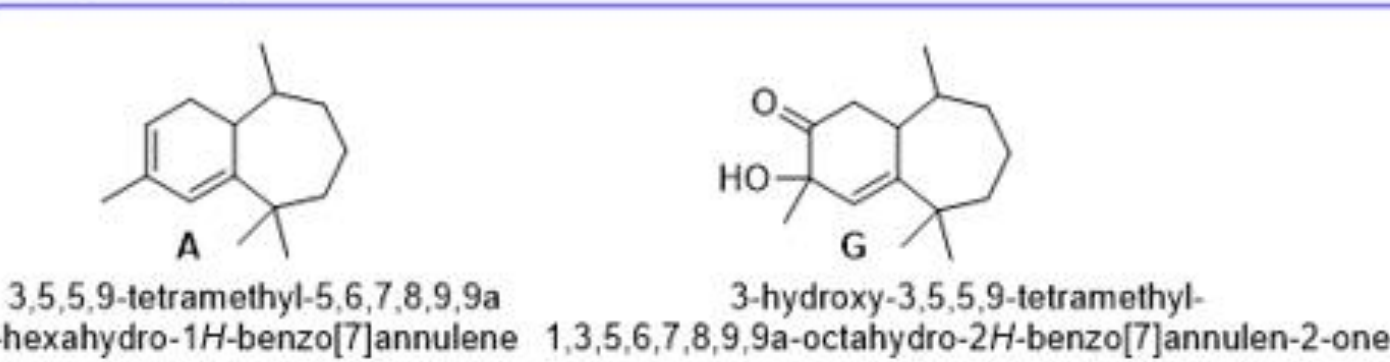
Research Area: Organic Chemistry, Synthesis Methodology and Mechanism

Tel: 886-271-7970, E-mail: cychern@mail.ncyu.edu.tw

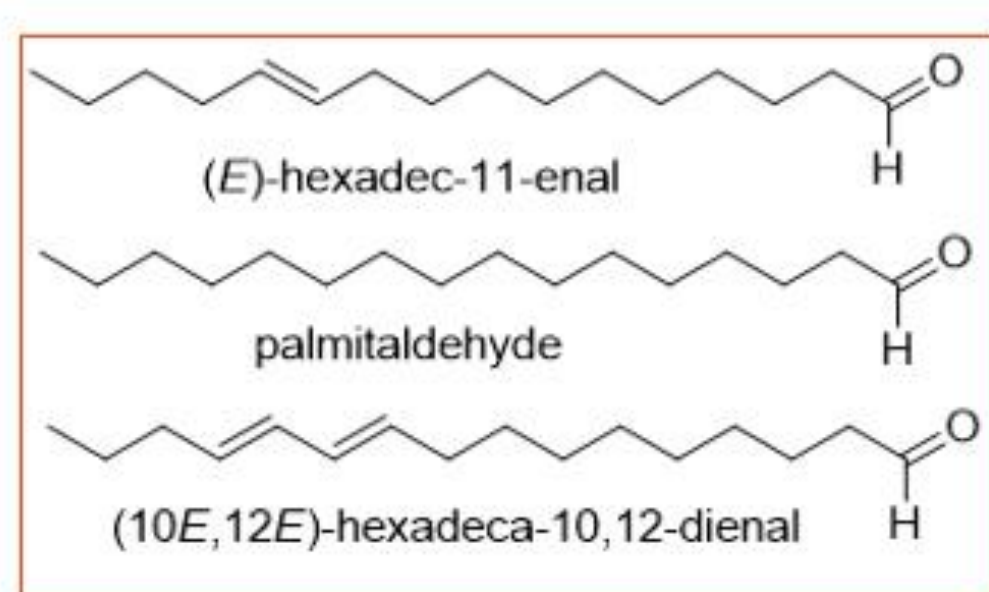
#### Research Interests :

Synthesis of sex pheromone of insects

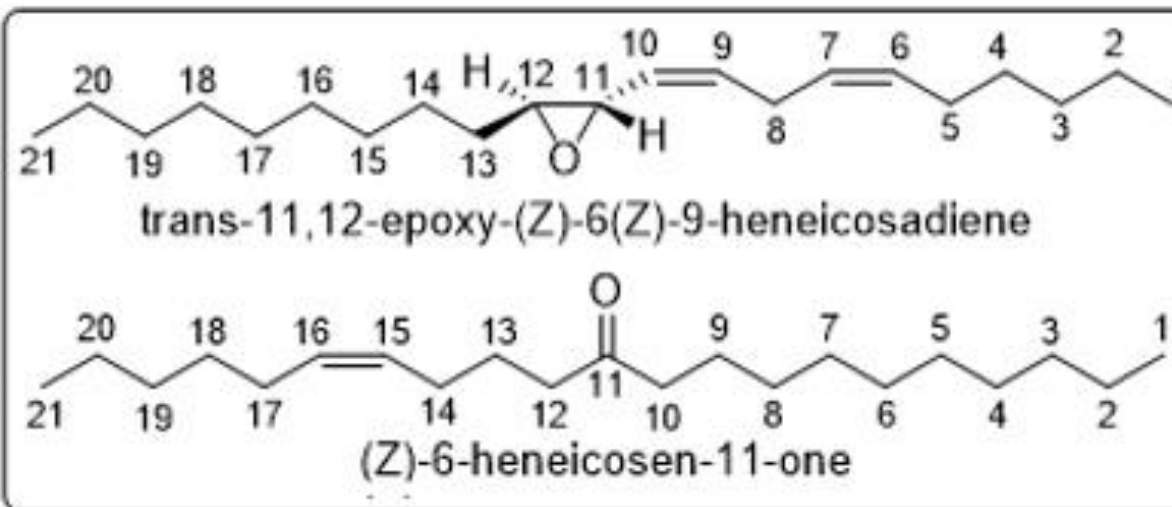
#### 黃條葉蚤



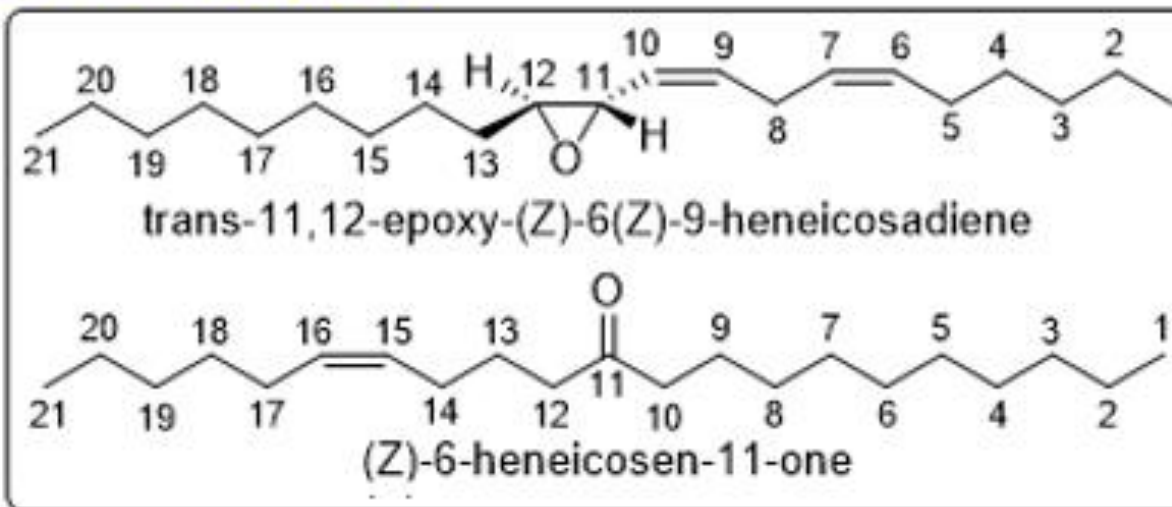
#### 瓜螟



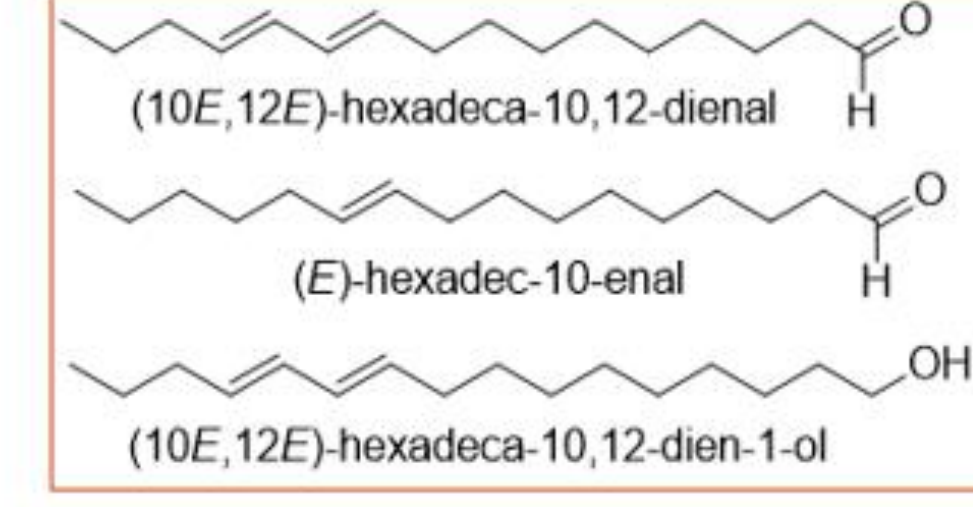
#### 荔枝細蛾



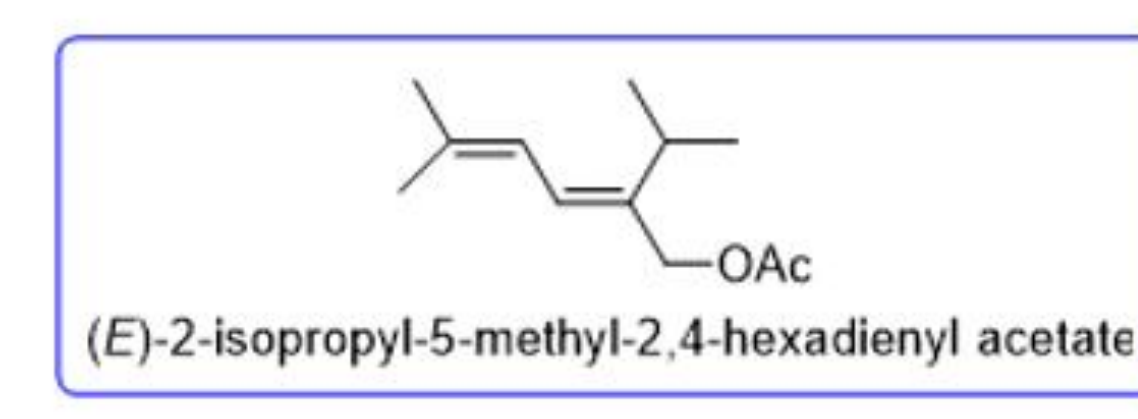
#### 小白紋毒蛾



#### 豆莢螟



#### 番石榴粉介殼蟲



莊翔宇 助理教授 Professor Hsiang-Yu Chuang

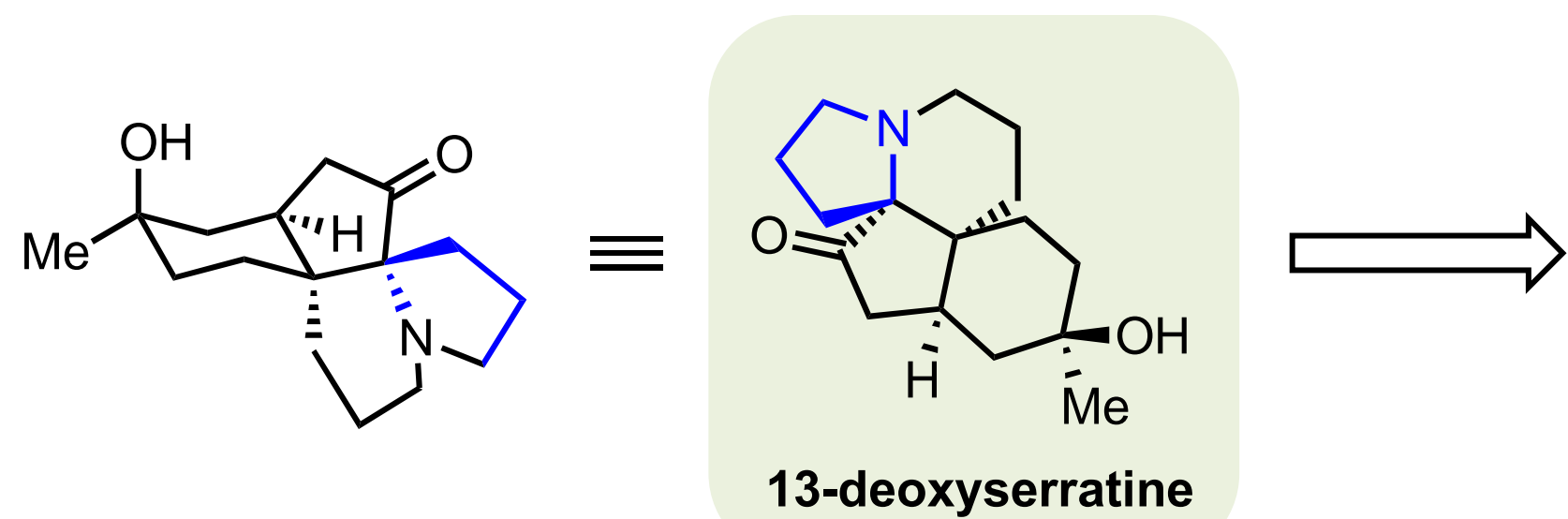
Research Area: Development of New Organic Reactions, Natural Product Synthesis, organoselenium chemistry

E-Mail: hychuang@mail.ncyu.edu.tw

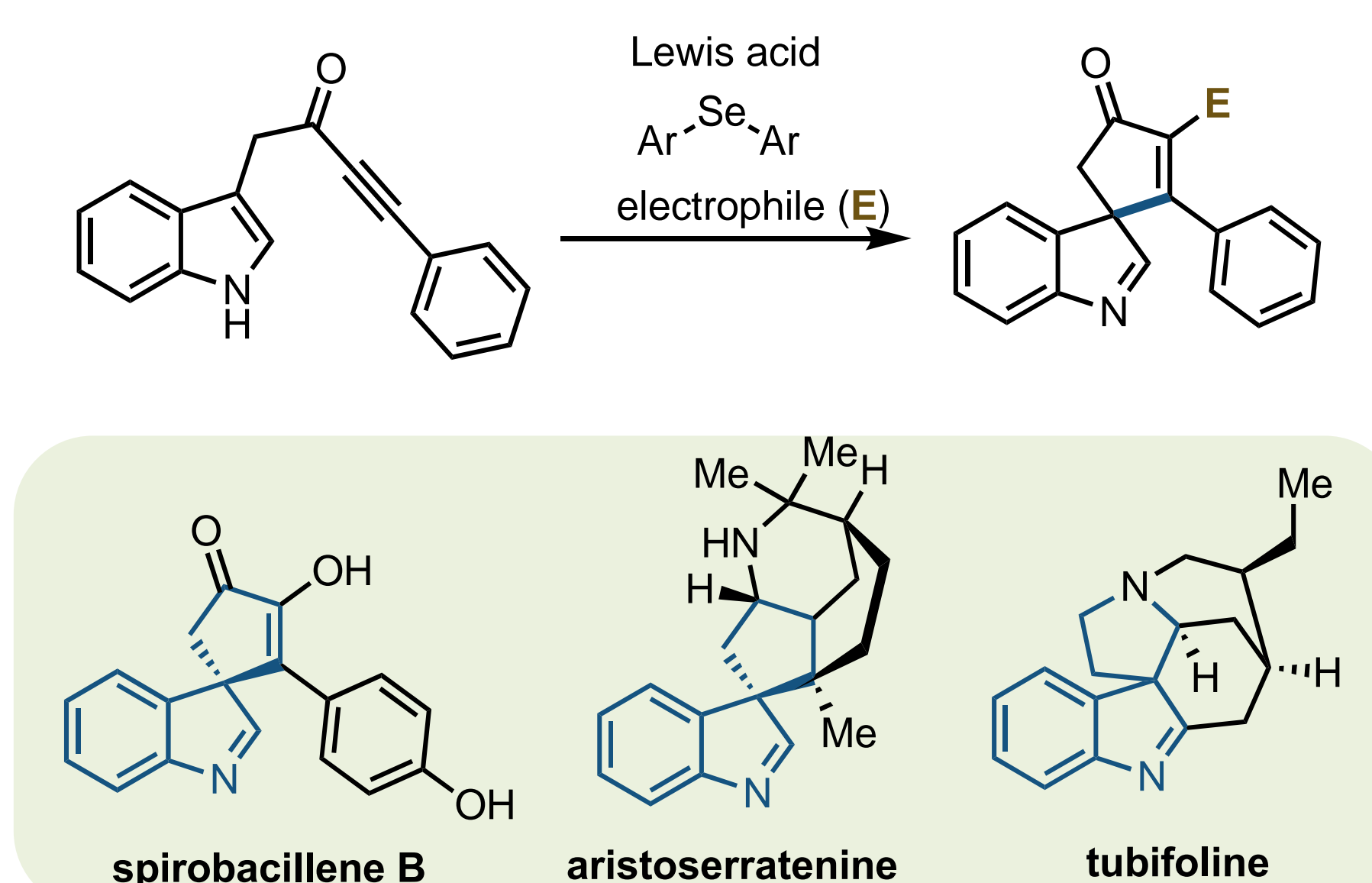
Hsiang-Yu Chuang (莊翔宇). National Tsing Hua University (Ph. D., 2017, advisor: Minoru Isobe). Postdoctoral Researcher at Vienna University (2019-2020, advisor: Nuno Maulide). Assistant Professor at National Chiayi University (2021-present).

#### Research Interests :

**Natural products synthesis:** We have been focused on the synthesis of 13-deoxyserratine from L-proline using a 1,3-dipolar cycloaddition as key reaction to introduce the highly challenging two contiguous quaternary centers.



**Development of New Organic Reactions:** Our group focus on development of new double bond and triple bond transformations by using organoselenium catalysts towards various biologically important molecules.



#### NMR:核磁共振光譜儀(應化系)







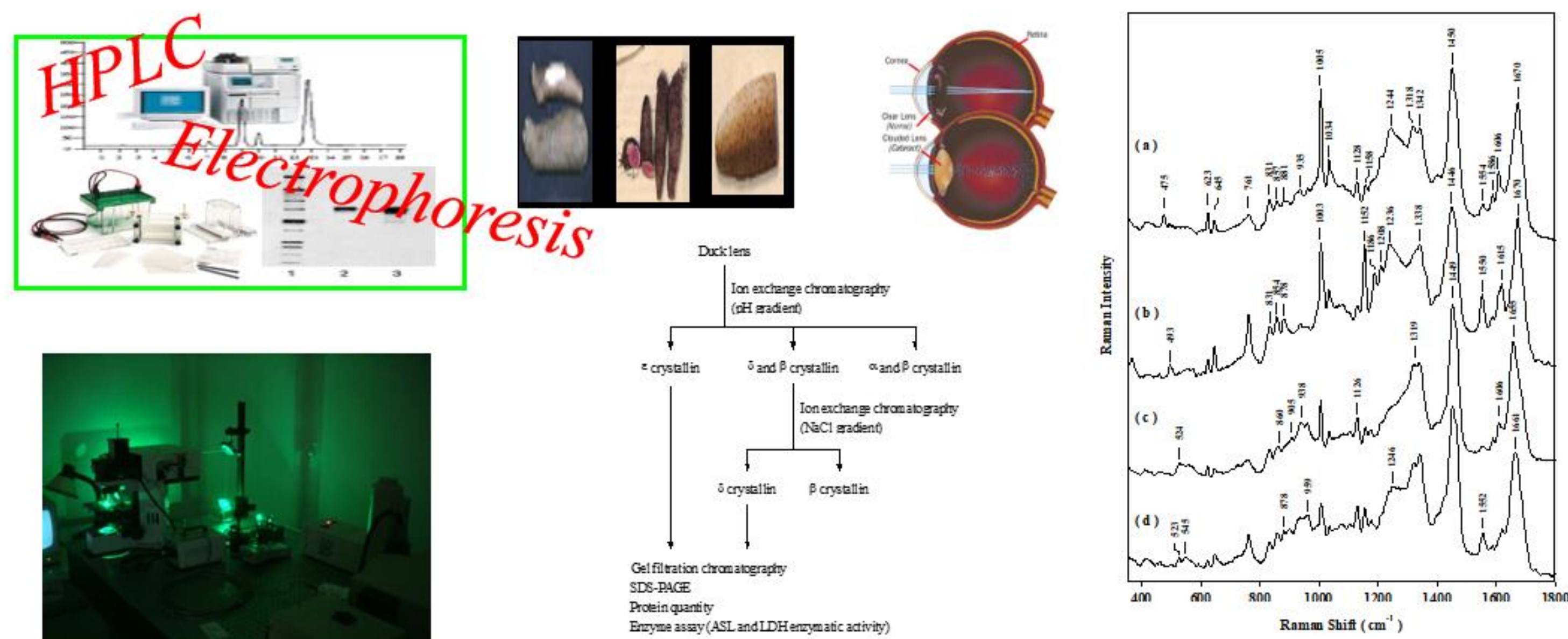
### 分析化學



陳文龍 教授 Professor **Wenlung Chen**, Ph.D.  
**Research Area:** Analytical Chemistry, Biophysical Chemistry  
 Tel: 886-271-7965, E-mail: wlchen@mail.ncyu.edu.tw

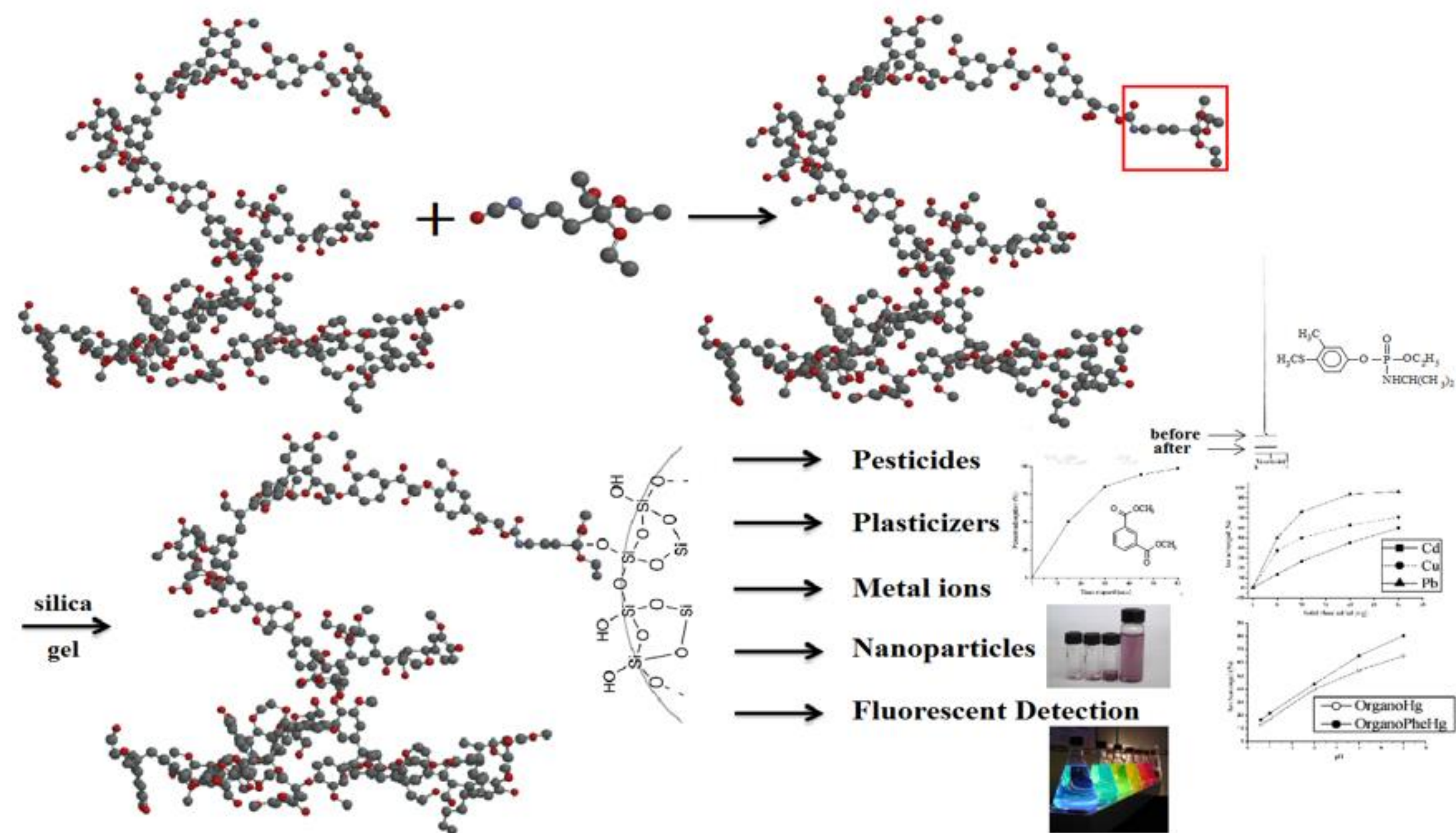
Development of Raman techniques in biochemical and biomedical applications:

- (I) Compositions, Antioxidants, and Spectral Analysis of Natural Products
- (II) Structural Characterization of Protein-Protein Interactions



陳世晞 教授 Professor **Shushi Chen**, Ph.D.  
**Research Area:** Analytical Chemistry  
 Tel: 886-271-7997, E-mail: schenphd@mail.ncyu.edu.tw

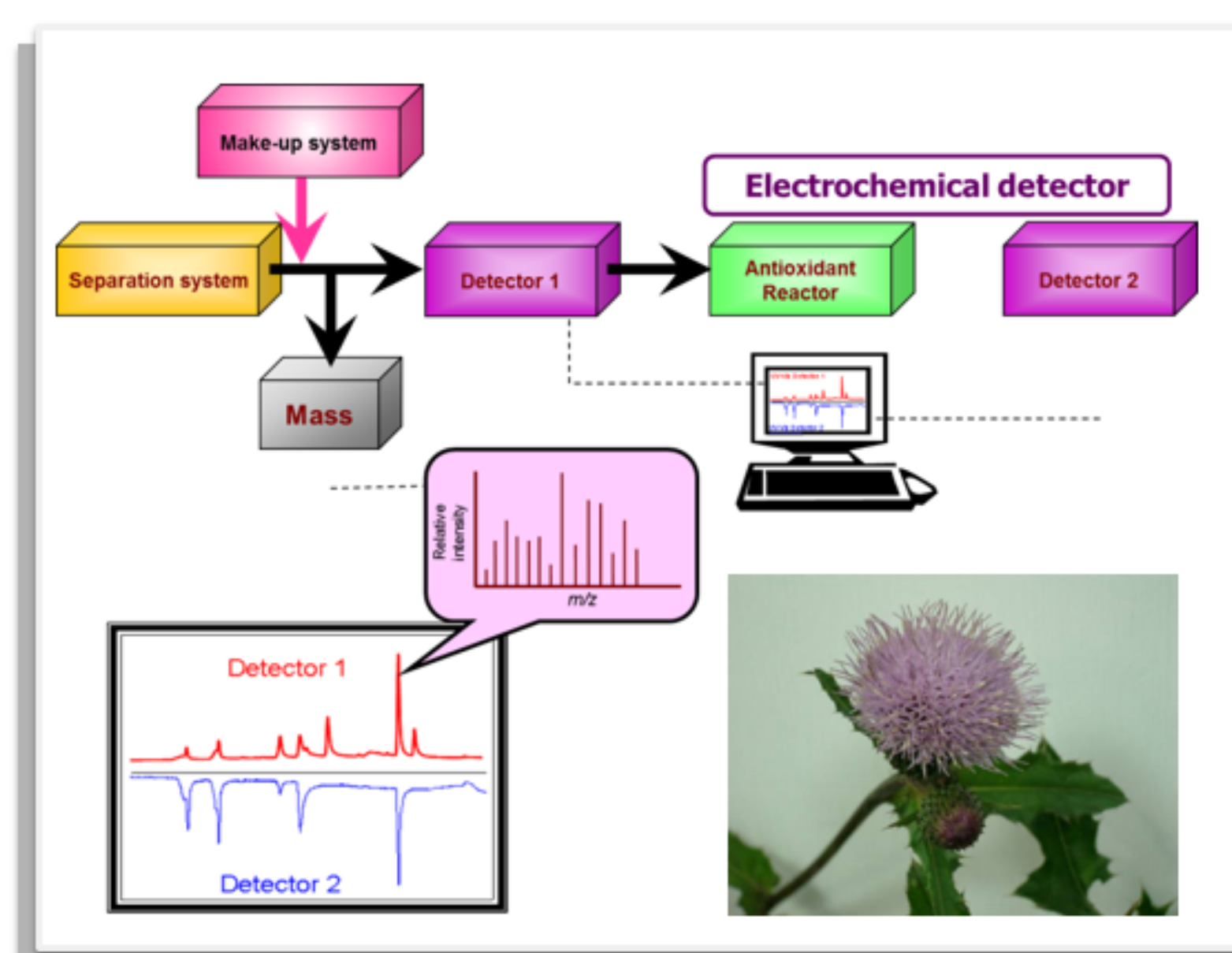
A Multipurpose Lignin-Based Adsorbent for Metallic Ions, Nanoparticles and Various Organophosphate Pesticides in Hexane



古國隆 教授 Professor **Kuo-Lung Ku**, Ph.D.  
**Research Area:** Analytical Chemistry, LC-UV-ECD-MS  
 Tel: 886-271-7405, E-mail: klku@mail.ncyu.edu.tw

**Research Interests:**

Integrating LC, electrochemical analysis, mass spectrometry for studying natural products.



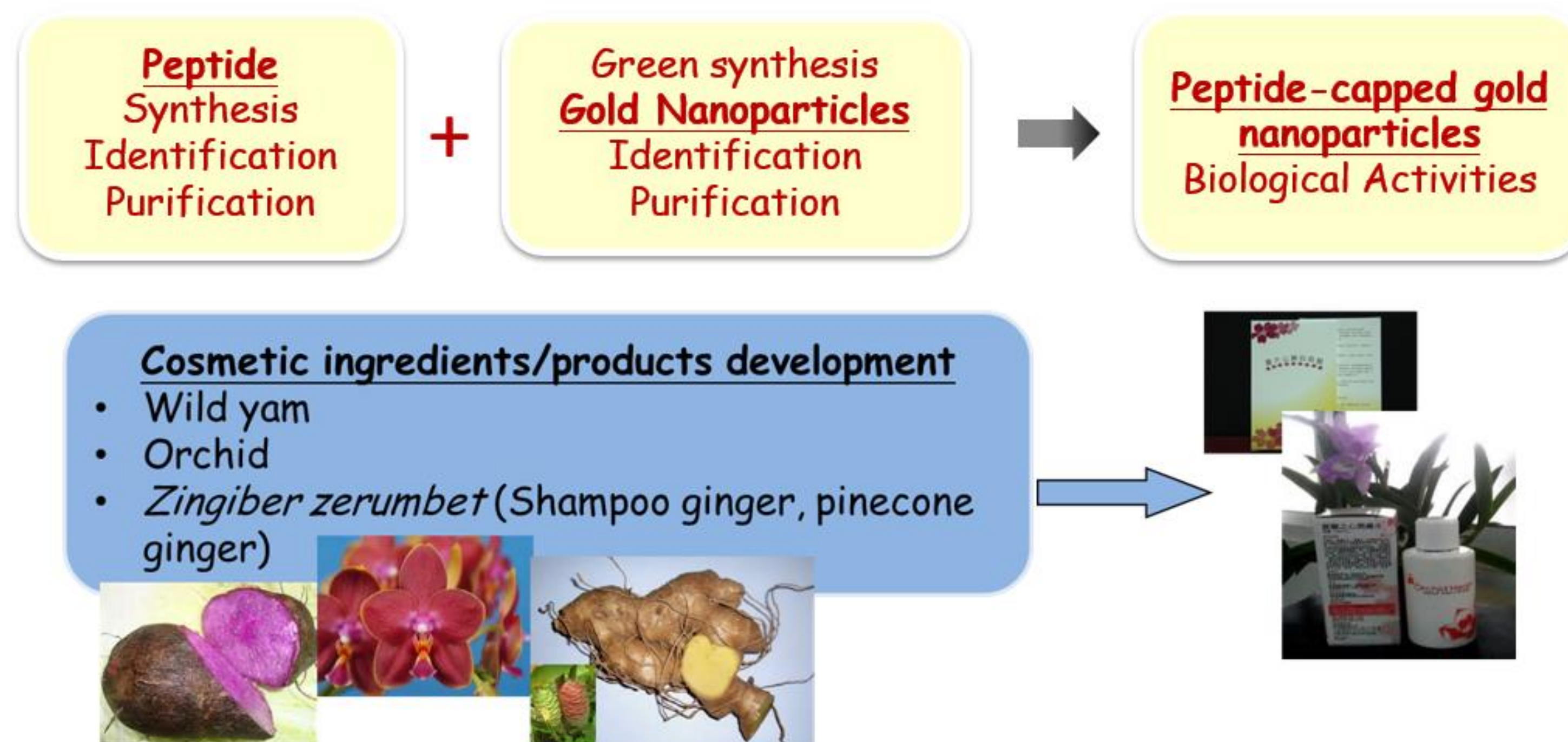
Developing

1. **Signal-Ratio-Based Antioxidant Index system**
2. **Electrochemical recovery and detection technique** for probing activities and structures of plant secondary metabolites, peptides, and other natural products



連經憶 助理教授 Assistant Professor **Ching-yi Lien**, Ph.D.  
**Research Area:** Analytical Chemistry, Nanoanalysis  
 Tel: 886-271-7963, E-mail: kelly@mail.ncyu.edu.tw

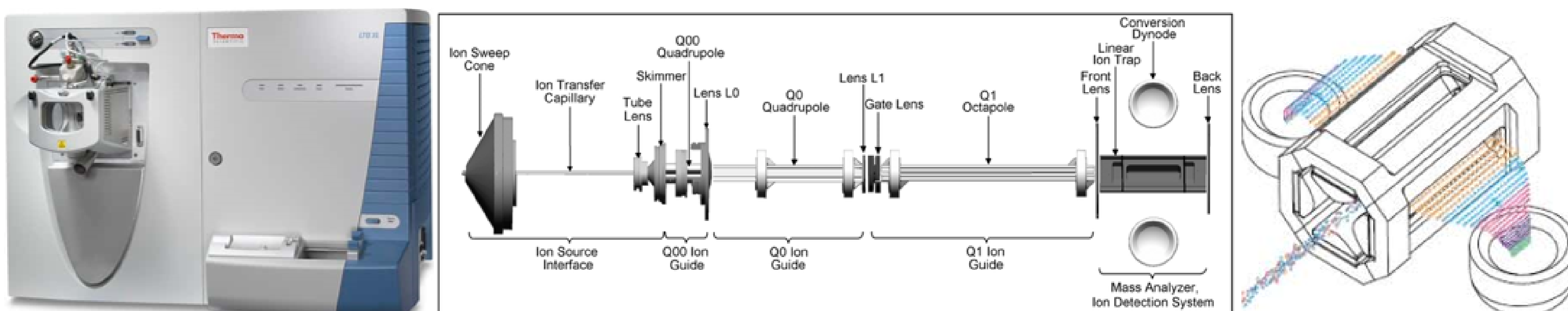
**Research Interests:**



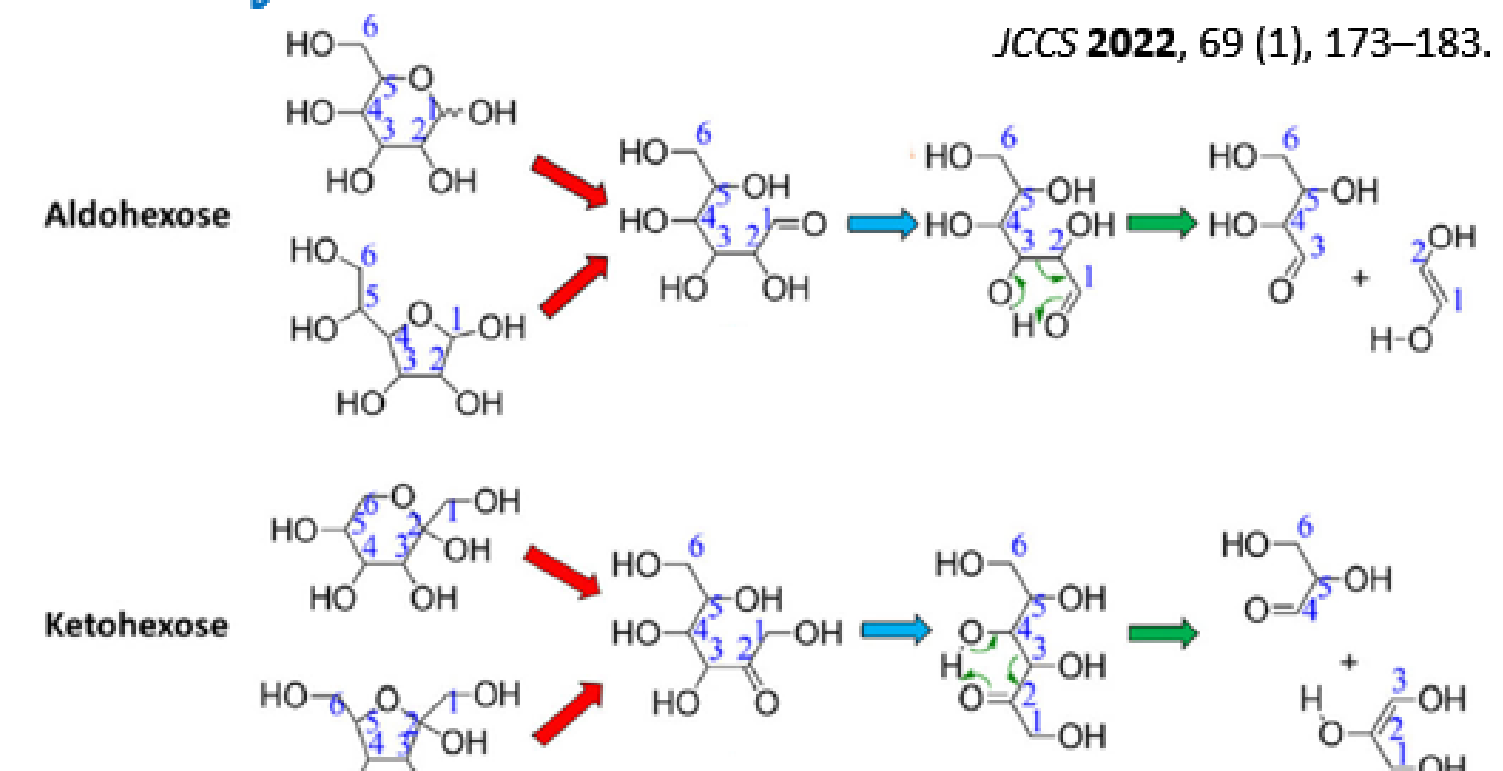
蔡尚庭 助理教授 Assistant Professor **Shang-Ting Tsai**, Ph.D.  
**Research Area:** Analysis of Carbohydrates Using Mass Spectrometry  
 Tel: 886-271-7920, E-mail: sttsai@mail.ncyu.edu.tw

**Research Interests :**

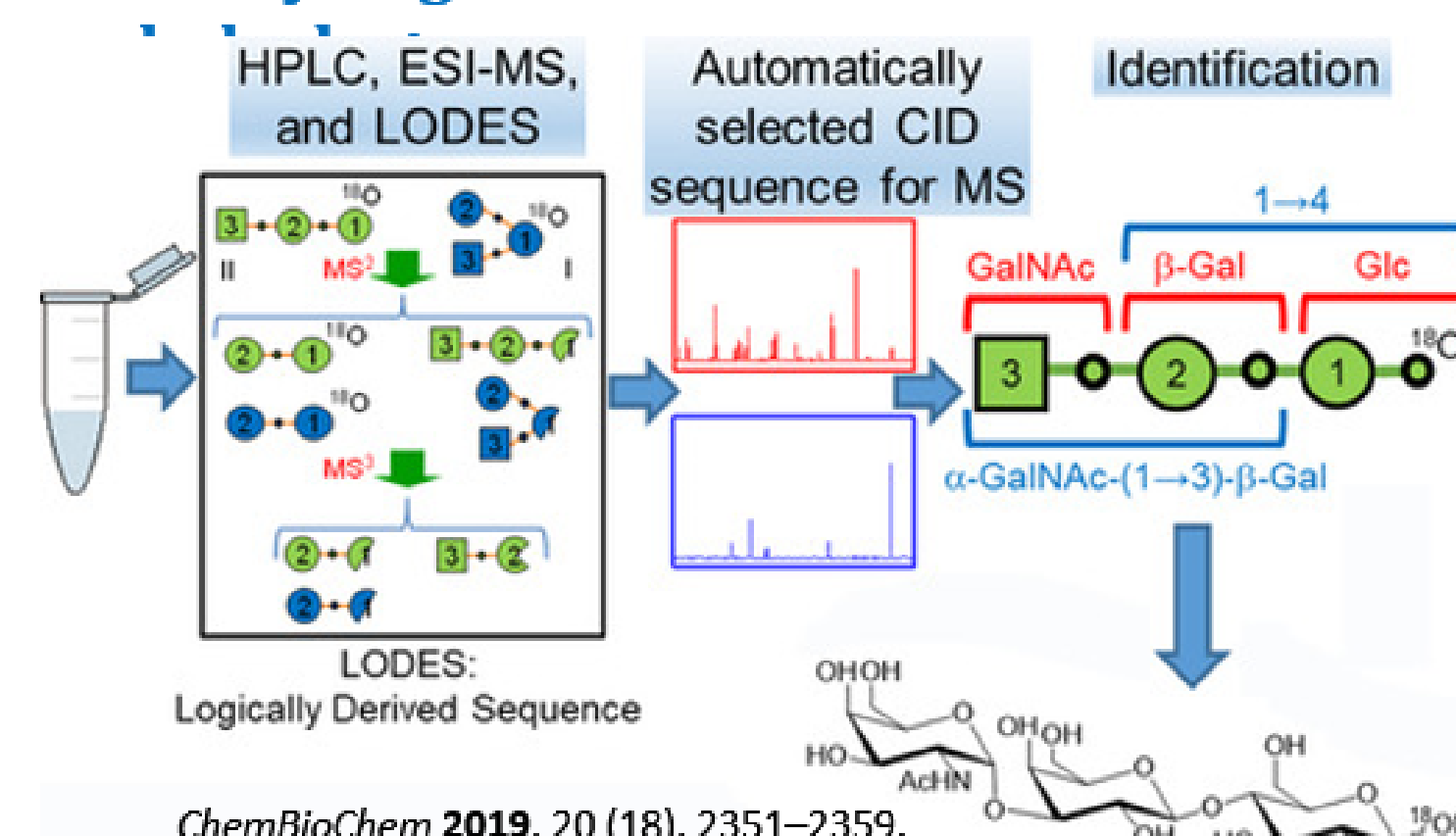
1. **Developing analytical technique of carbohydrates using mass spectrometry.**



2. **Investigating the dissociation pathways of carbohydrates.**



3. **Analyzing the structure of**



Micro-Raman



LC-Mass





## 掌握化學先進技術，創造你的明亮未來

### 理論化學、生物無機、生物化學及其應用



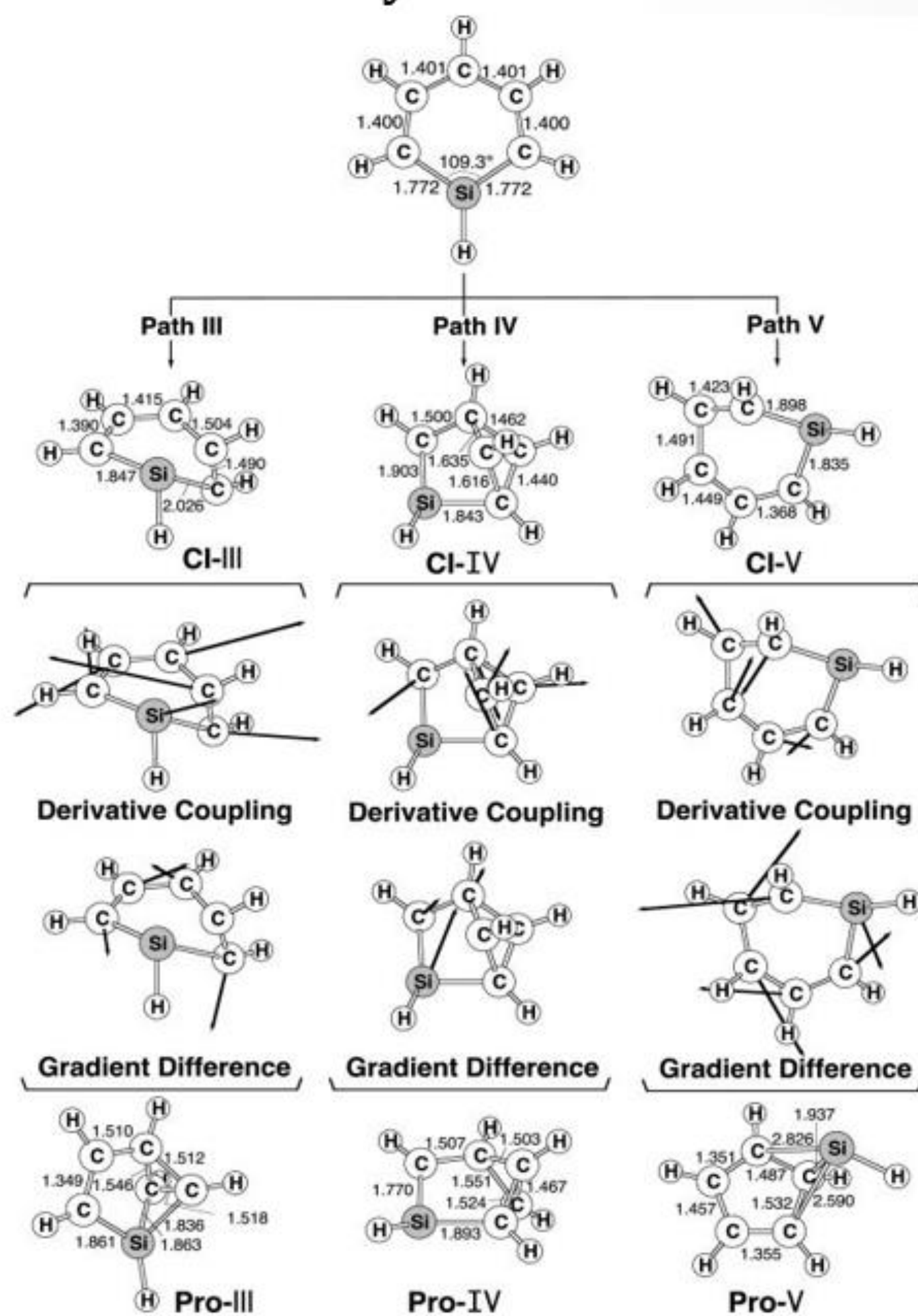
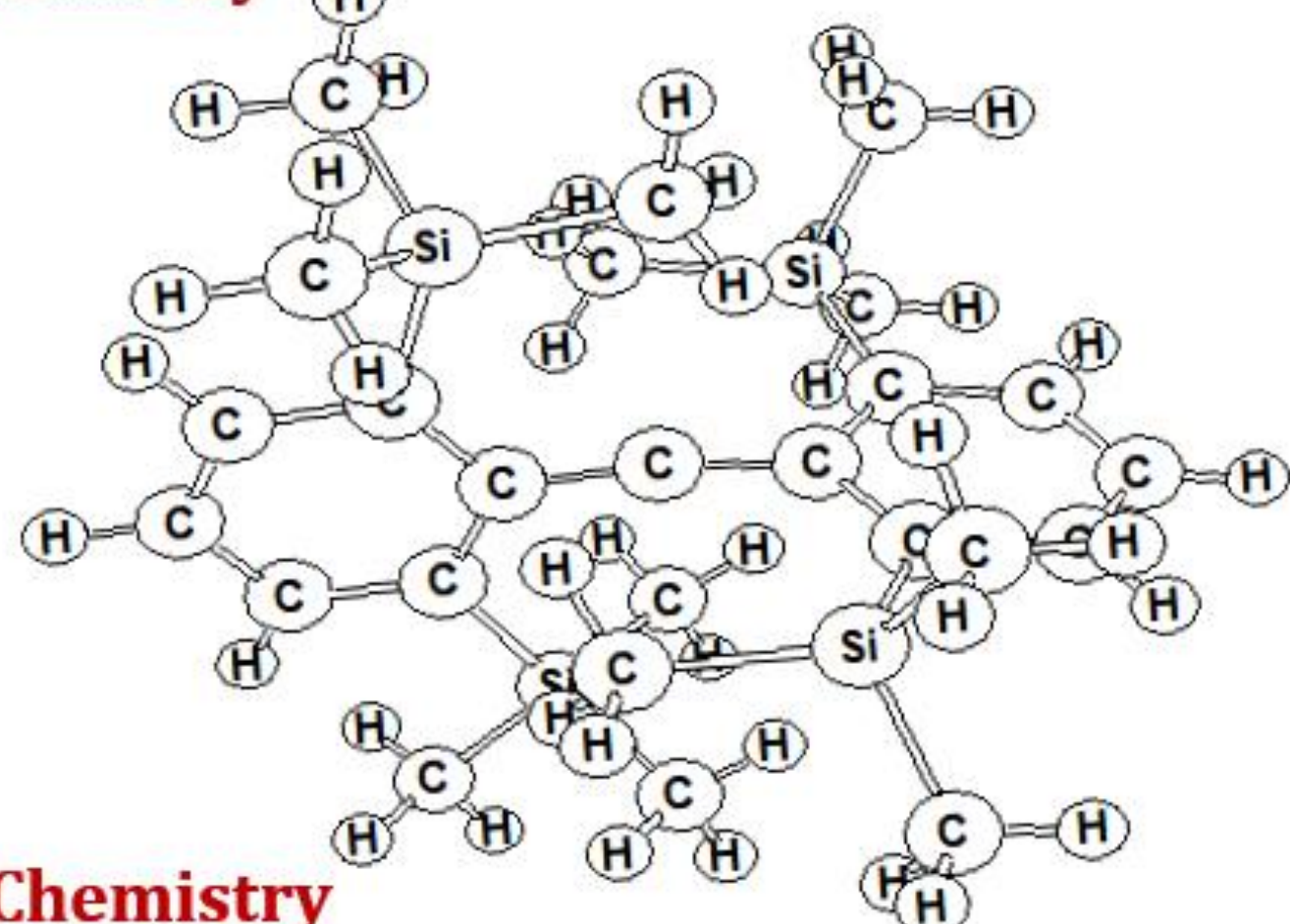
蘇明德 教授 Professor Ming-Der Su, Ph.D

Research Area: Theoretical Chemistry

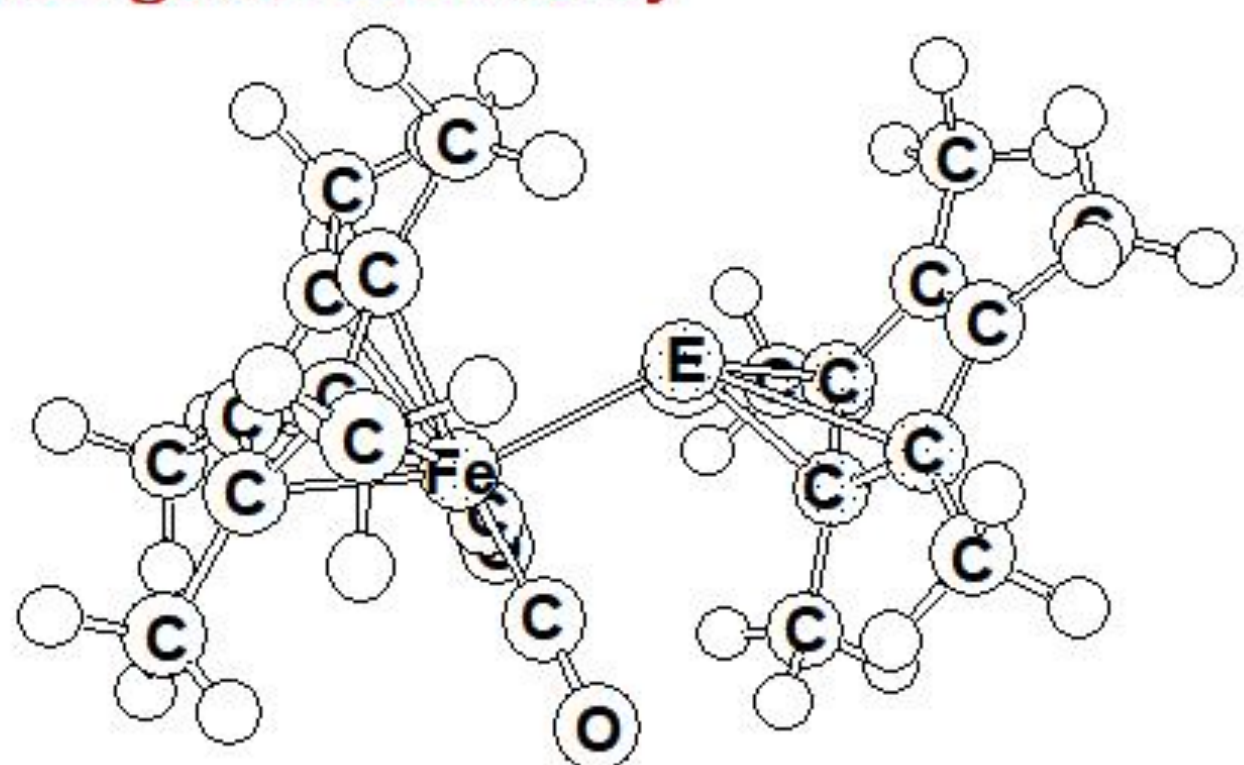
Tel: 886-271-7964, E-mail: midesu@mail.ncyu.edu.tw

Research Interests:

#### (1) Organic Chemistry



#### (2) Inorganic Chemistry



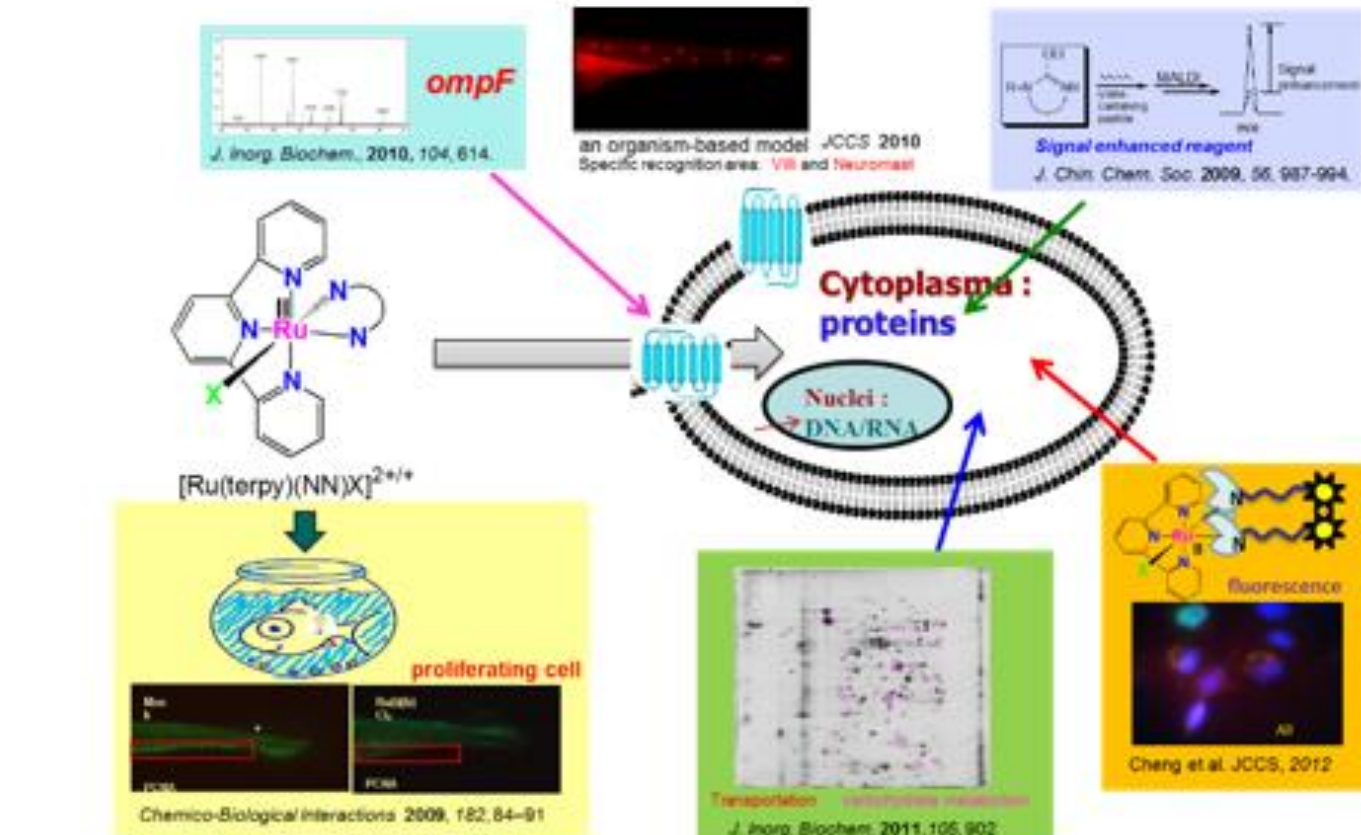
鄭建中 教授 Professor Chien-Chung Cheng, Ph.D.

Research Area: Bio-Organic and Bio-Inorganic Chemistry

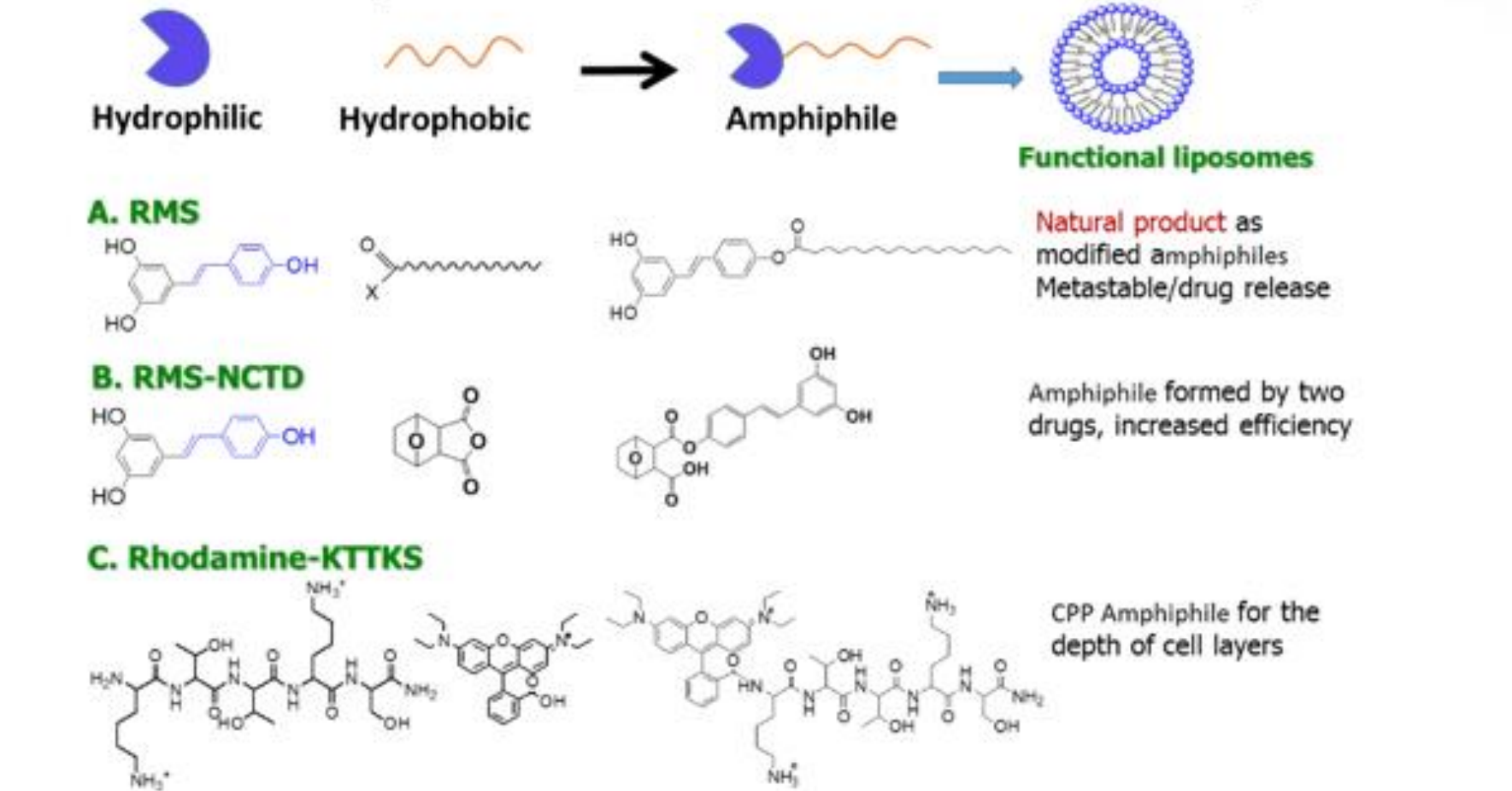
Tel: 886-5-2766084, E-mail: cccheng@mail.ncyu.edu.tw

Research Interests

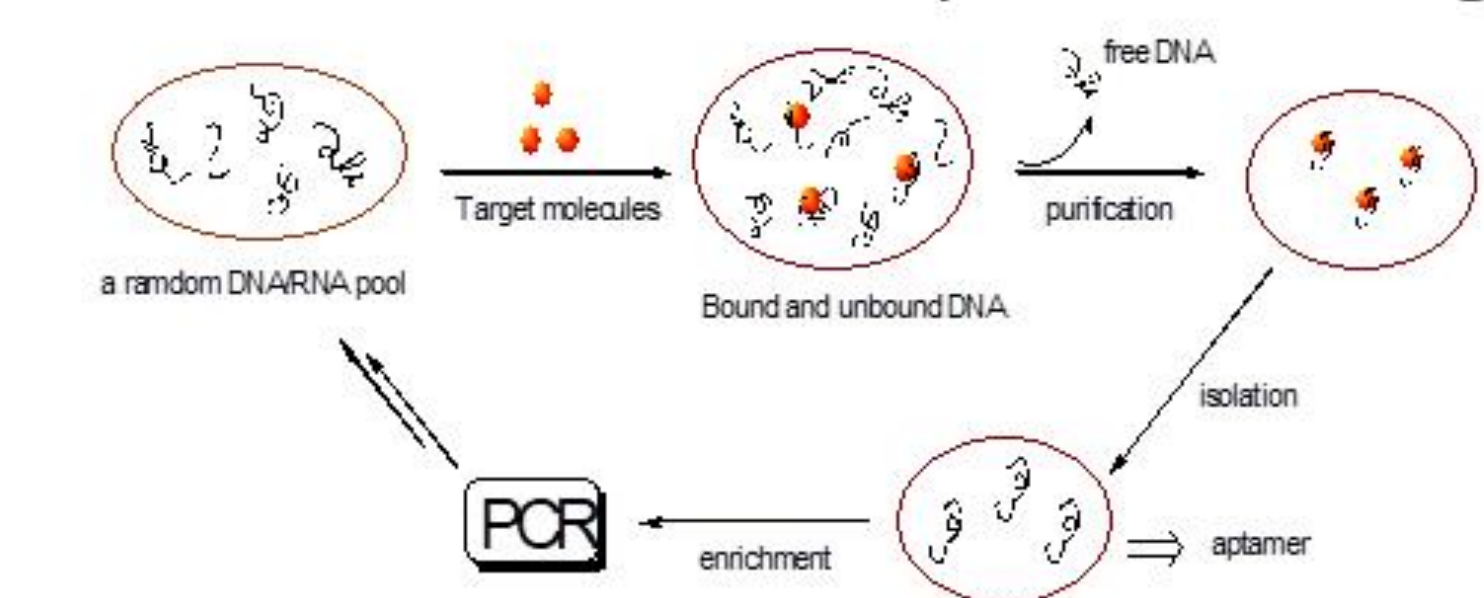
1. To study the relationship between bio-molecules structures and their functions;



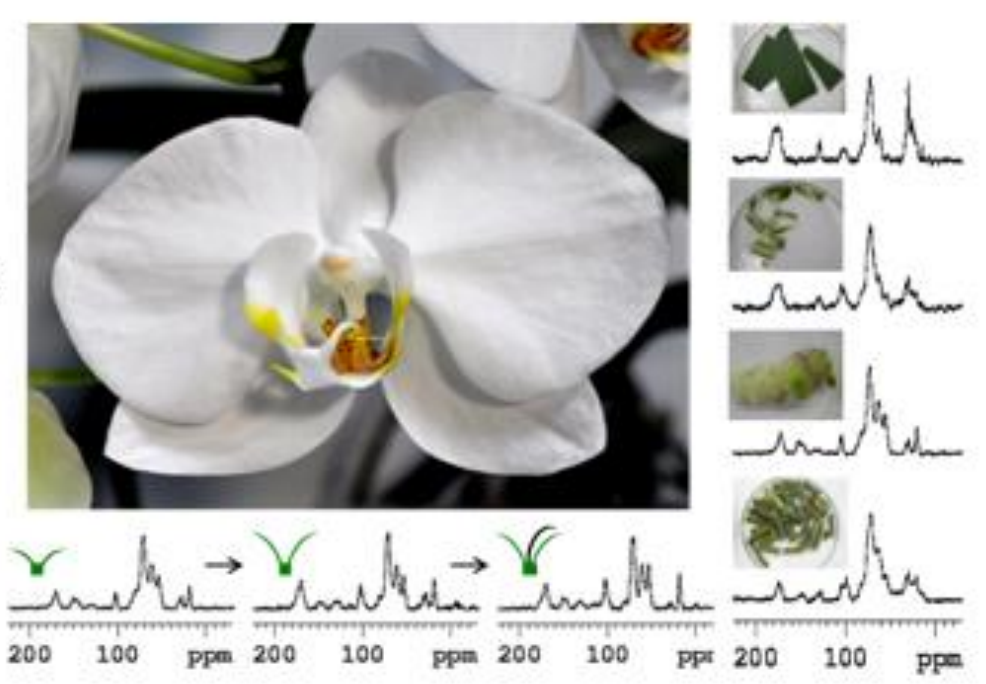
2. To develop chemical tools for cell transportation



3. To discover chemotherapeutic DNA drugs



4. To study the regulation factors of small molecules in plant growth



邱秀貞 副教授 Associate Professor

Show-Jen Chiou, Ph.D

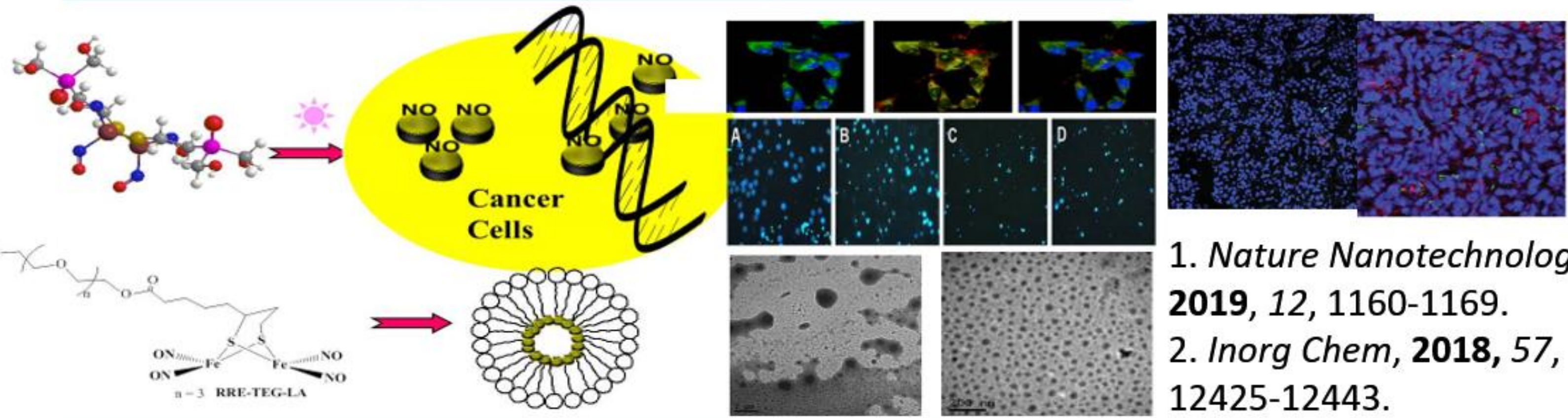
Research Area: Bioinorganic/organometallic Chemistry

Metal biomedical materials

Research Interests

Tel: 886-271-7951, E-mail: genechiou@mail.ncyu.edu.tw

Step 1: Synthesis of water-soluble and air stable Fe-based NO-RMs - RREs  
Step 2: Regulators of NO release  
Step 3: Detectors of NO release - DNA Cleavage & NO analyzer



1. Nature Nanotechnology, 2019, 12, 1160-1169.  
2. Inorg Chem, 2018, 57, 12425-12443.  
3. U.S. Patent Application No. 15/413,428, January 24, 2017.

Step 4: Penetration of NO into Cancer cells  
Step 5: Antitumor activity; Trace the NO-RMs & the pathway of apoptosis  
Step 6: Real World Study; Application in PDT



王梓帆 助理教授 Assistant Professor Tzu-Fan Wang, Ph.D

Research Area: Biochemistry, Biochemical Analysis

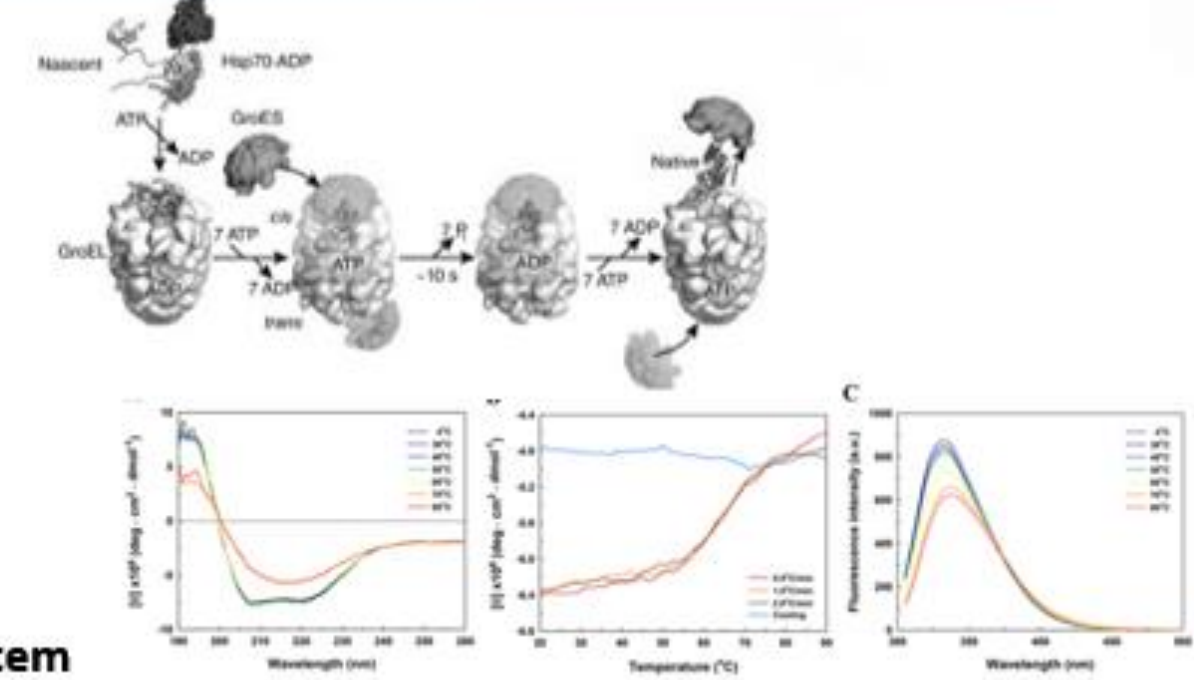
Tel: 886-271-7969, E-mail: tfwang@mail.ncyu.edu.tw

Research Interests:

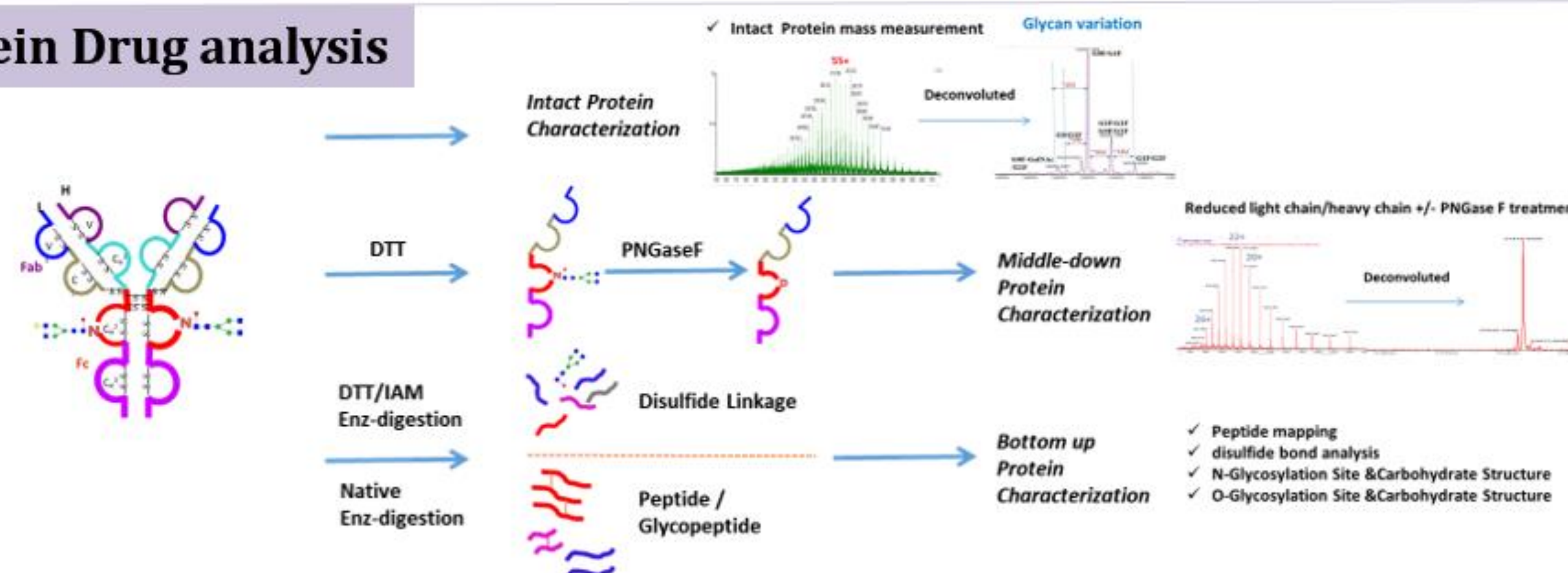
#### Phosphotriesterases

- Escherichia coli prolidase (EcPepQ)
- Pseudomonas diminuta phosphotriesterase (PdPTE)

- Expression system optimization
  - High-Yield Expression System
  - Chaperone Co-expression
  - Protein Refolding System
- Structure and Function Characterization
  - Enzym activity assay
  - Secondary and Tertiary Structure
- Application
  - Enzyme Immobilization
  - Chemical and Organic Co-solvent System



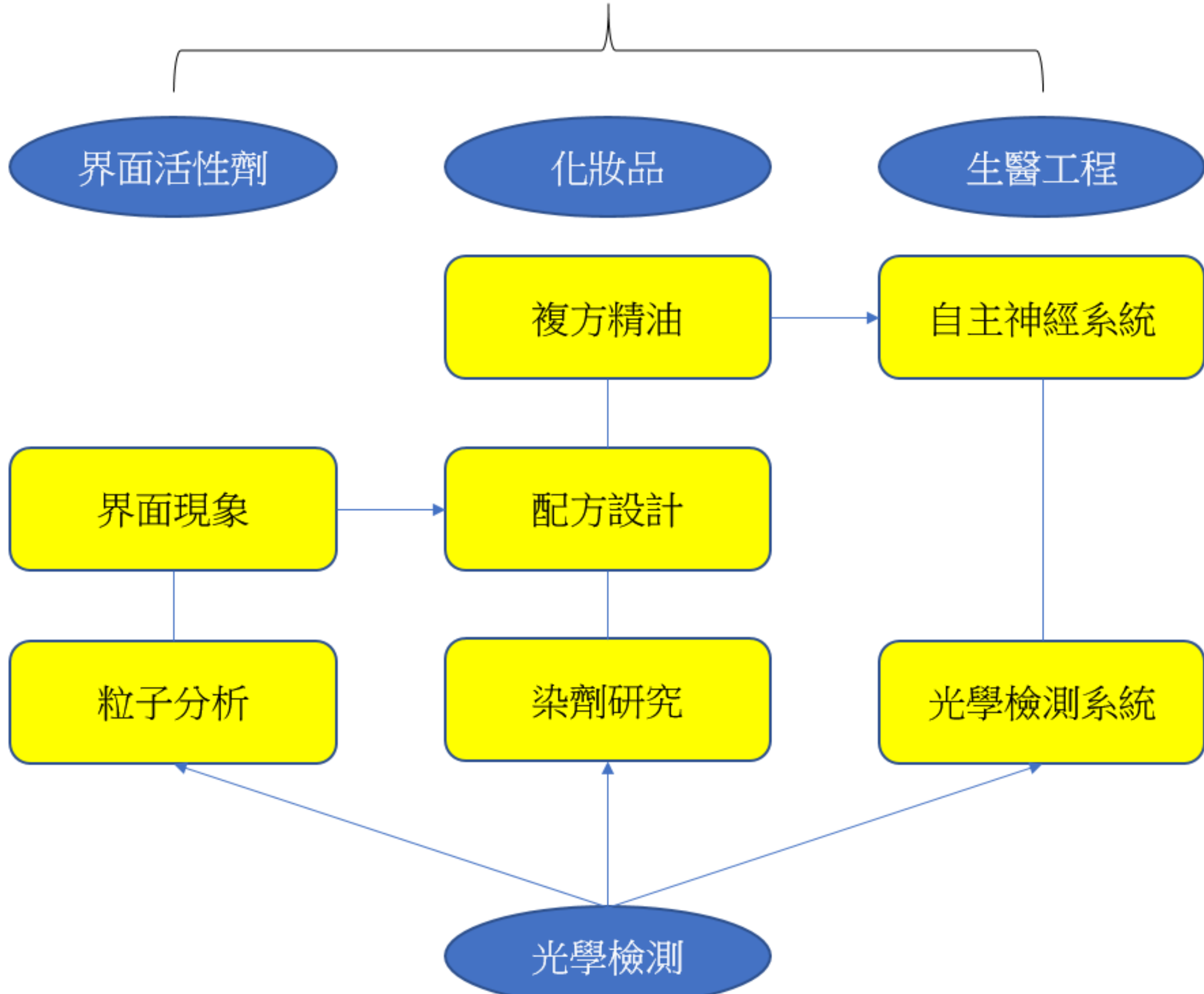
#### Protein Drug analysis



#### 莊琮凱助理教授

化學工程、光學檢測、芳香療法、化妝品成分與配方、經營管理

莊琮凱 老師



FTIR



CD-ORD



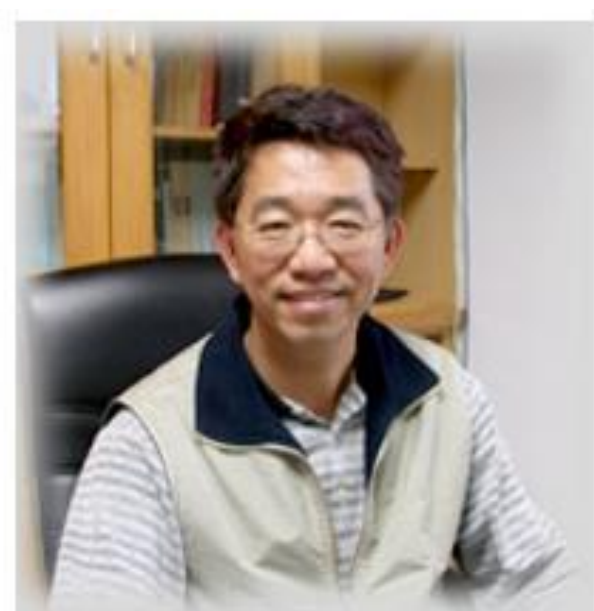


# 國立嘉義大學應用化學系

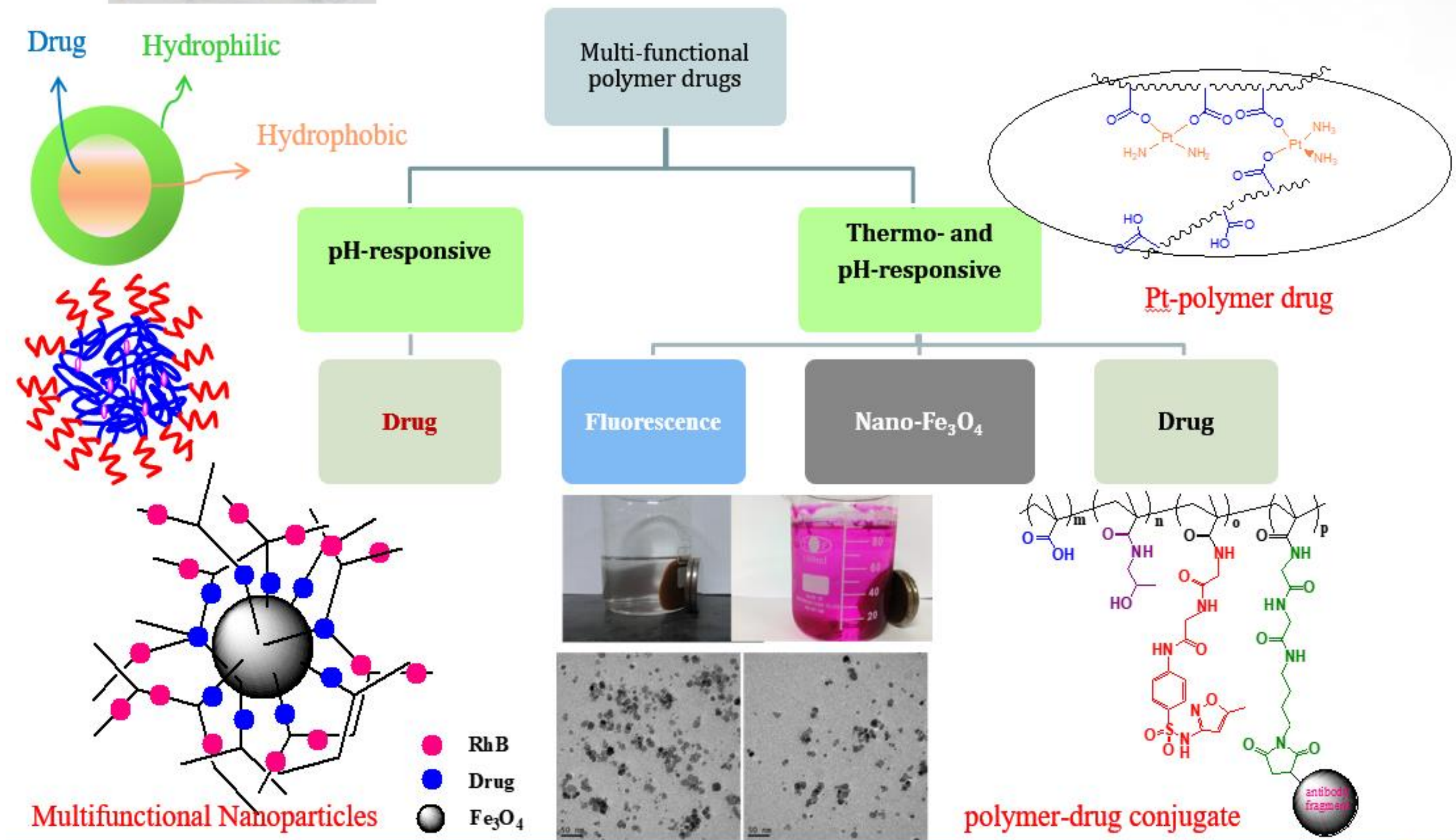


## 掌握化學先進技術，創造你的明亮未來

### 奈米材料科學

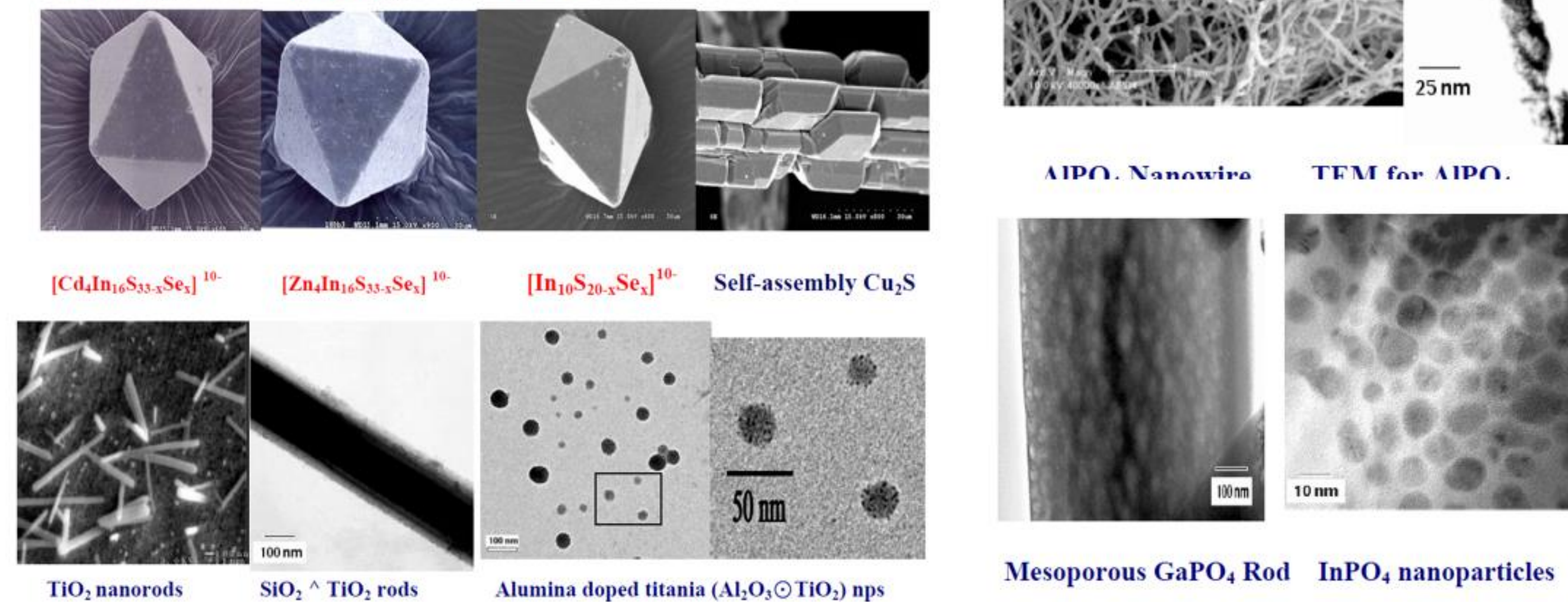


梁孟 教授 Professor **Mong Liang, Ph.D**  
**Research Area:** Polymer Chemistry, Catalysis  
 Tel: 886-271-7952, E-mail: mliang@mail.ncyu.edu.tw

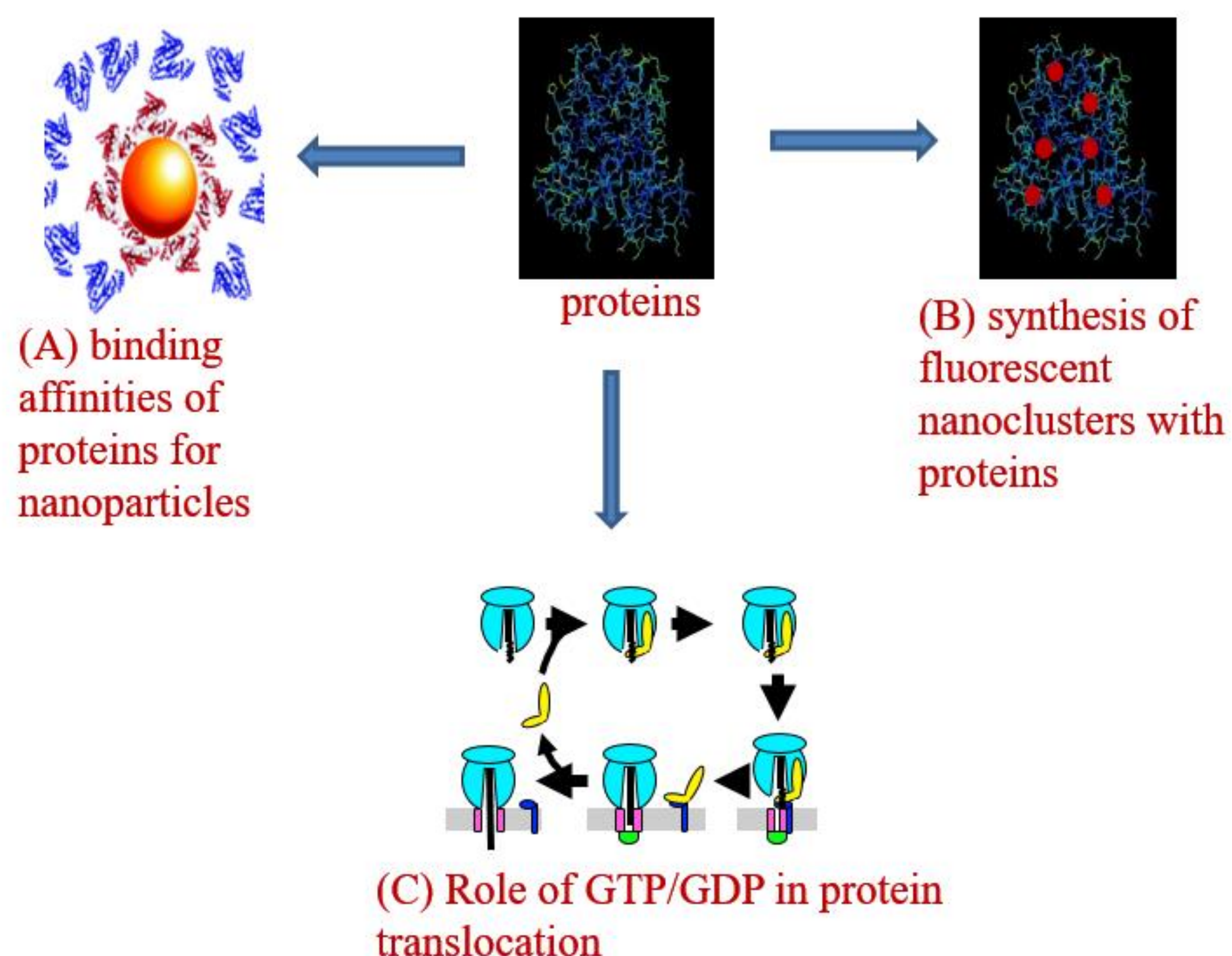


楊鐘松 教授 Professor **Chung-Sung Yang Ph.D**  
**Research area:** Solid State Chemistry; Nanomaterials  
 Tel: 886-5-271-7962 E-mail: csyang@mail.ncyu.edu.tw

Research Interests: 研究興趣  
 \*Solid State Synthesis. 固態合成:  
 \*Supramolecular Molecular Nanoclusters: 超分子奈米團簇  
 \*Nano- photocatalyst: 奈米光觸媒材料  
 \*Porous Materials Synthesis: 微孔及中孔洞材料合成  
 NCYU-1 嘉大 1 號 NCYU-2 嘉大 2 號 NCYU-3 嘉大 3 號



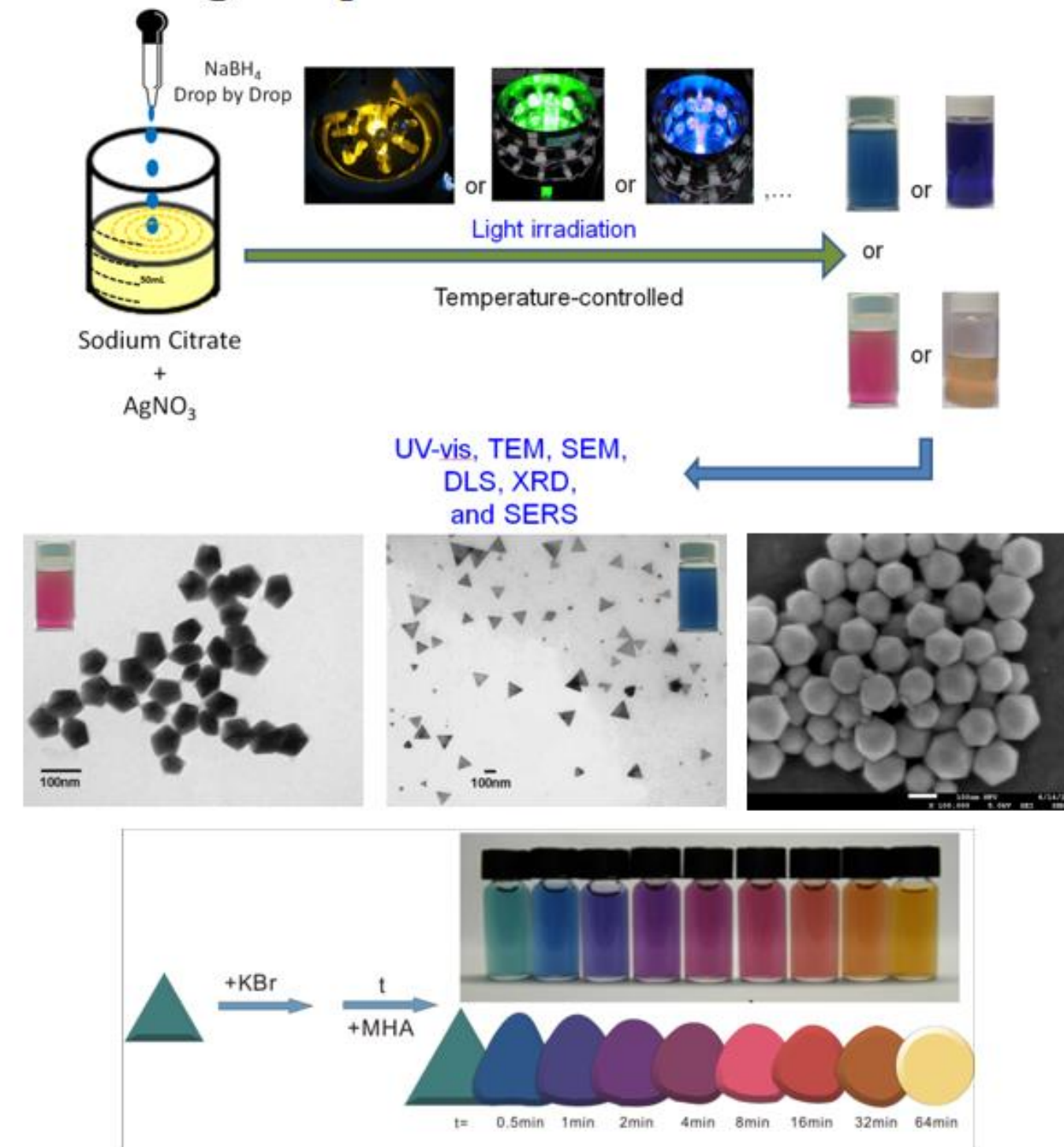
陳瑞彰 助理教授 Assistant Professor **Jui-Chang Chen, Ph.D**  
**Research Area:** Biochemistry, Nanomaterials  
 Tel: 886-271-7968, E-mail: chenjc@mail.ncyu.edu.tw



黃正良 教授 Professor **Cheng-Liang Huang**  
**Research Area:** Physical chemistry of nanomaterials  
 Tel: 886-271-7963, E-mail: clhuang@mail.ncyu.edu.tw

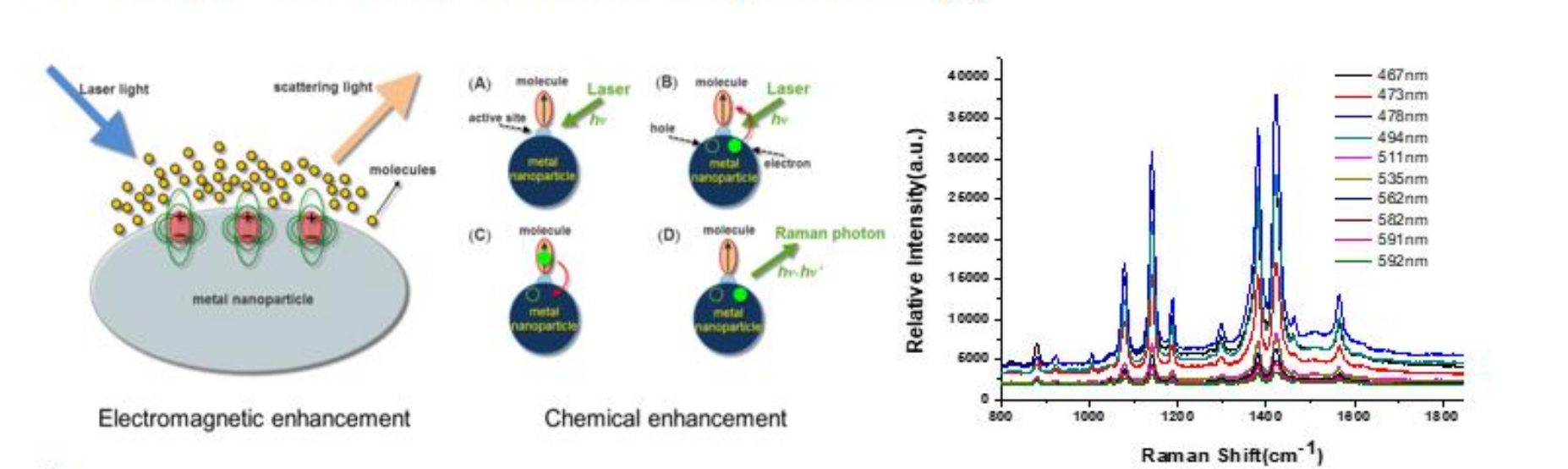
#### Research Interests :

1. Synthesis of silver nanoparticles with specific shapes or narrow LSPR bands using the photochemical reaction.

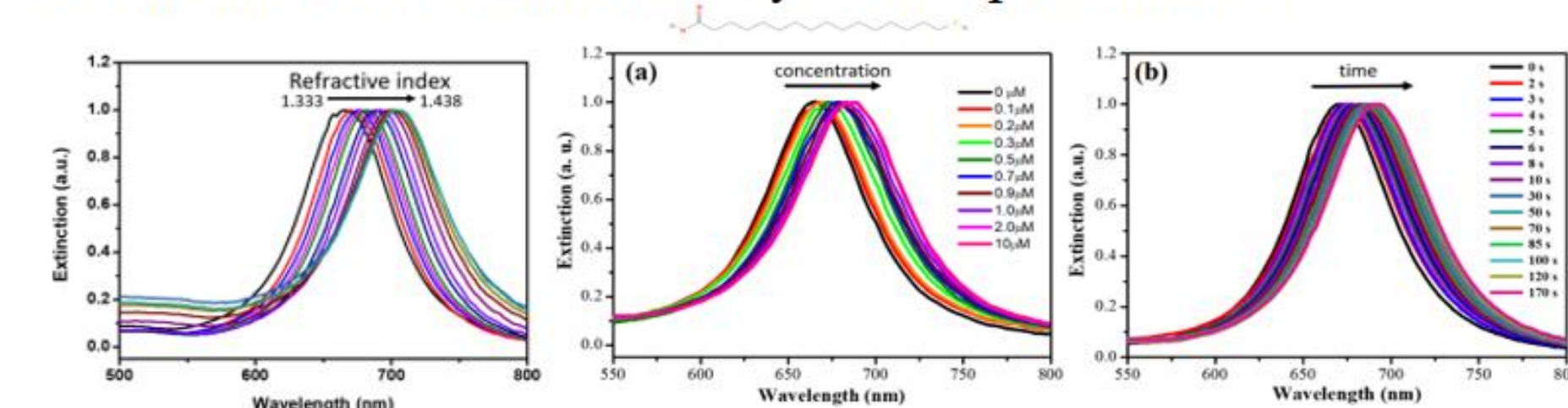


2. Applications of silver nanoparticles:

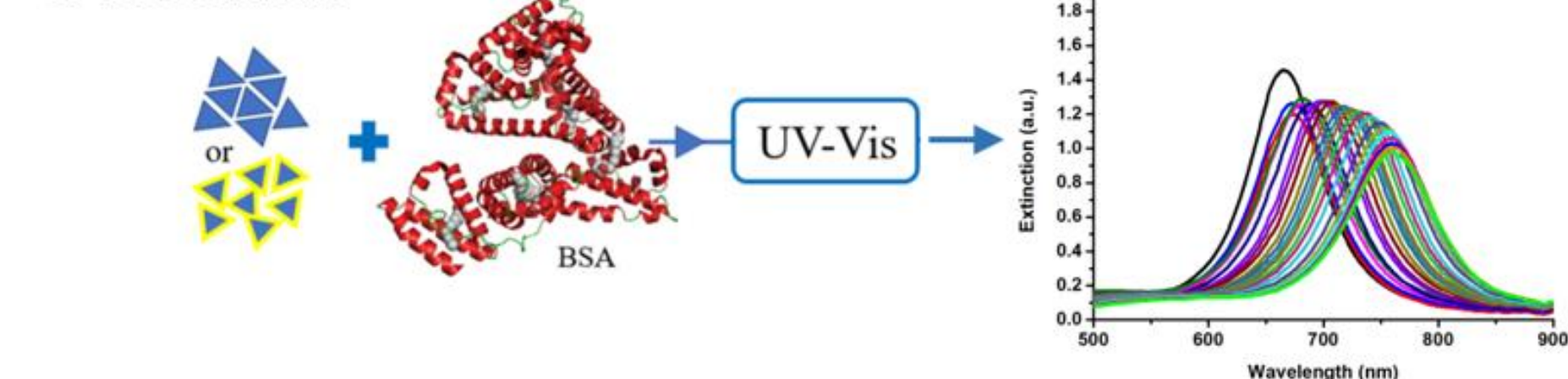
a. Surface-Enhanced Raman spectroscopy



b. Chemical sensors and the study of adsorption kinetics

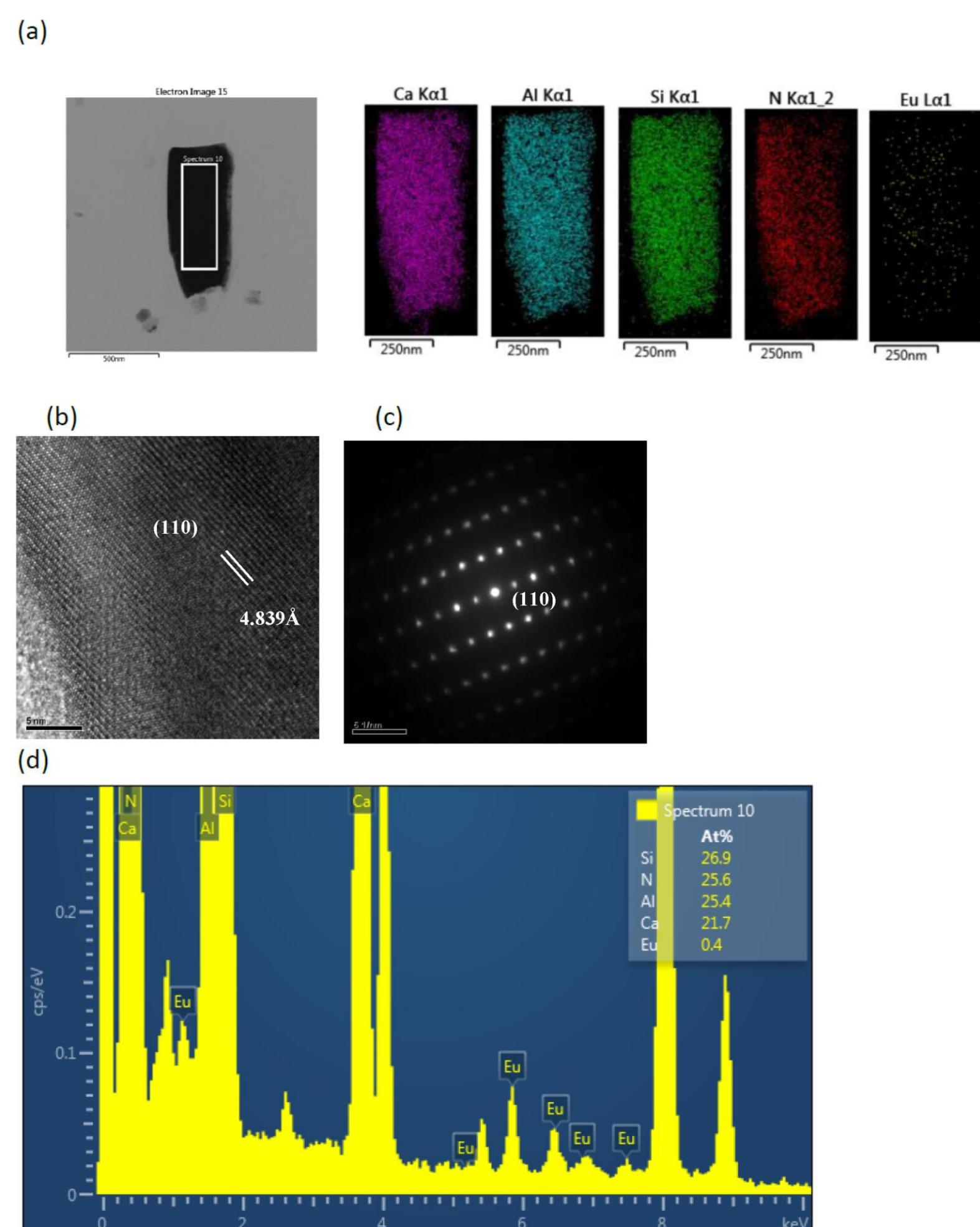


c. Biosensors



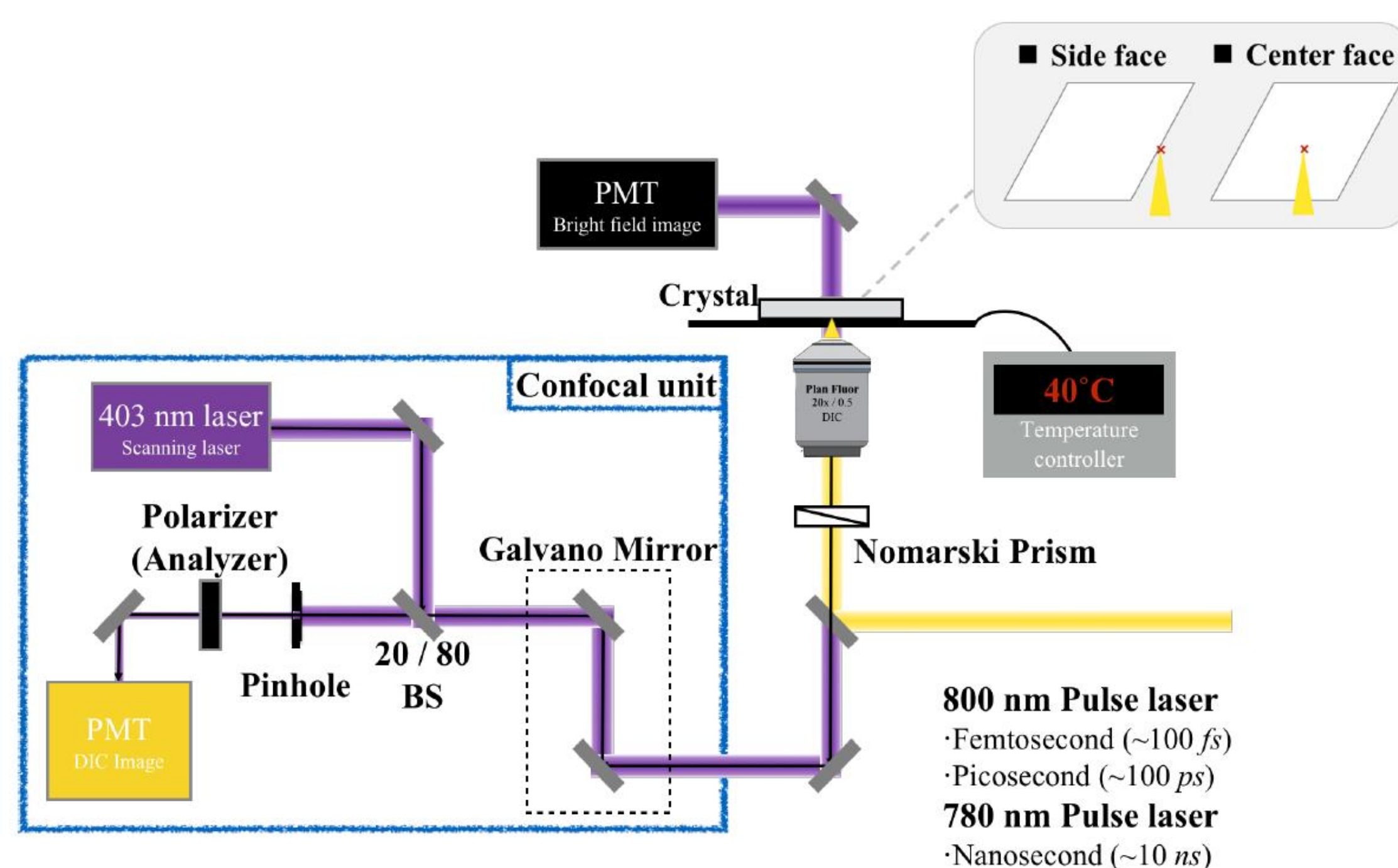
#### 黃姝綺助理教授

發光材料合成與分析、光電能源材料合成與應用、陶瓷材料製程開發、半導體化合物合成



#### 吳奇勳助理教授

計算化學、雷射結晶學



XRD



TEM



Micro-Raman spectrometer