

## Assistant Professor Wen-Chung Wu

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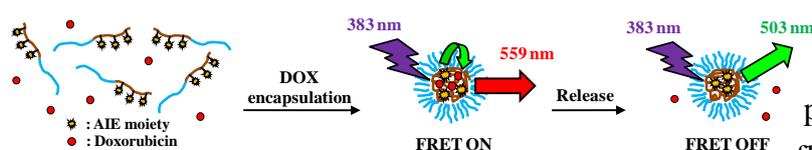
### Research Interests

We focus on the synthesis and application of functional polymers. The chemical structures and architectures of these polymers are delicately designed to persuade desired self-assembled morphologies and functionalities. The applications of our functional polymers include but not limit to: (1) Fabrication of optoelectronic devices, (2) Smart nanocarriers for controlled and target drug delivery, (3) Fluorescent sensors.

### Representative Publications

1. **W.-C. Wu**, C.-Y. Chen, Y. Tian, S.-H. Jang, A. K.-Y. Jen\*, B. Z. Tang, W.-C. Chen, (2010) "Enhancement of Aggregation-Induced Emission in Polymeric Micelles and Its Application in Bioimaging." *Adv. Funct. Mater.*, 20, 1413-1423 (**cover picture of the issue**).
2. P.-H. Lin, W.-Y. Lee, **W.-C. Wu\***, W.-C. Chen\*, "Synthesis, properties, and electrical memory characteristics of new diblock copolymers of polystyrene-block-poly(styrene-pyrene)" *Polymer Bulletin*, 69, 29-47.
3. J.-I. Chen, **W.-C. Wu\***, (2013) "Fluorescent Polymeric Micelles with Aggregation-Induced Emission Properties for Monitoring the Encapsulation of Doxorubicin" *Macromolecular Bioscience*, Vol. 13, 623-632.
4. **W.-C. Wu\***, C.-M. Huang, P.-W. Liao, (2014) "Dual-sensitive and folate-conjugated mixed polymeric micelles for controlled and targeted drug delivery" *Reactive & Functional Polymers*, Vol. 81, 82-90.
5. **W.-C. Wu\***, H.-H. Chang, (2015/2) "Fluorescent polymeric micelles containing fluorene derivatives for monitoring drug encapsulation and release" *Colloid and Polymer Science*, Vol. 293, 453-462.
6. **W.-C. Wu**, C.-Y. Chen, W.-Y. Lee, W.-C. Chen\* (2015/5) "Stimuli-responsive conjugated rod-coil copolymers: synthesis, morphology, and applications." *Polymer* 65, A1-A16. (**Feature article**)

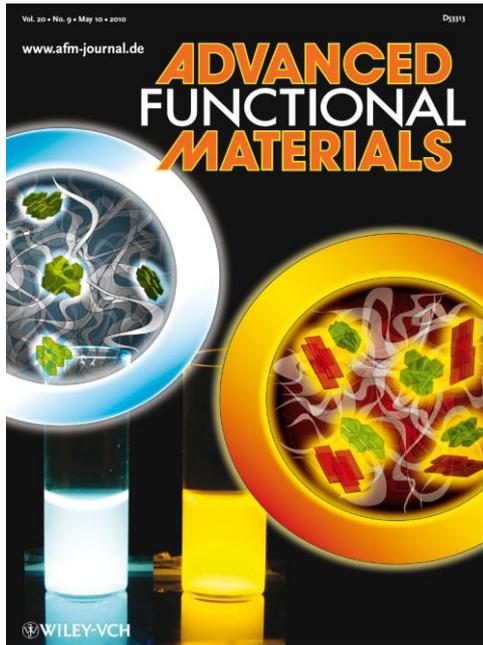
### ✧ Fluorescent Polymeric Micelles with Aggregation-Induced Emission Properties for Monitoring the Encapsulation of Doxorubicin (*Macromol. Biosci.*, 13, 623-632)



Fluorescent polymeric micelles with aggregation-induced emission properties have been utilized as a fluorescent probe and an anticancer

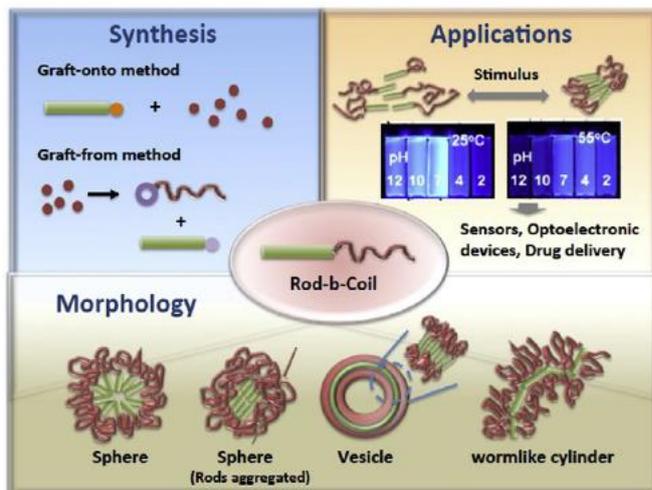
drug carrier simultaneously. The Förster resonance energy transfer from micelles to drugs has facilitated the indications of successful encapsulation and subsequent release of doxorubicin in these micelles.

- ✧ **Enhancement of Aggregation-Induced Emission in Dye-encapsulated Polymeric Micelles for Bioimaging** (*Adv. Funct. Mater.*, 20, 1413-1423)



Highly efficient fluorescence probes are achieved through the encapsulation of aggregation-induced emission molecules, in the core of polymeric micelles. Bright fluorescence cell images are shown with tunable colors of green directly from HPS and red through efficient FRET from HPS to NPAFN.

- ✧ **Stimuli-responsive conjugated rod-coil copolymers: synthesis, morphology, and applications** (*Polymer* 65, A1-A16, Feature article)



This feature article focuses on the recent progress in stimuli-responsive conjugated rod-coil block copolymers on their synthetic routes, stimuli induced transitions in morphologies, and numerous applications in different fields.