Peng-Fei Cao

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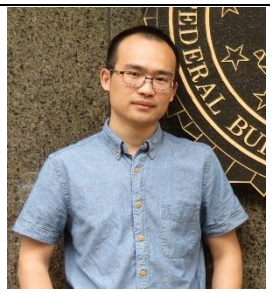

Objective

Seeking a research scientist position in which I can utilize my professional research experience and skills to increase my scientific accomplishment and broaden my scientific understanding.

Education

Ph.D student of Polymer Science, Advisor: Dr. Advincula
Department of Macromolecular Science and Engineering,
Case Western Reserve University, GPA: 4.0/4.0, Cleveland, USA — May 2012 – present

Ph.D student of Chemistry, Advisor: Dr. Advincula
Department of Chemistry, University of Houston, GPA: 3.64/4.0, Houston, USA — Sept. 2010 – May 2012

Master of Polymer Chemistry and Physics, Advisor: Dr. Chen
Department of Chemistry, Tianjin University, GPA：3.54 /4.0 (1/32), Tianjin, China — Sept. 2008 – Jul. 2010

Bachelor of Applied Chemistry
Department of Chemistry, Tianjin University, GPA：3.44 /4.0 (6/56), Tianjin, China — Sept. 2004 – Jul. 2008

Research Experience

- Topologically Interesting Polymers, i.e. Catenated polymers and Knotted polymers: Design, Synthesis and Property study.
- Light-sensitive Polymer Materials: Design, Synthesis and Applications.
- Hybrid Polymer-Noble Metal Nanoparticles: Fabrication and Property study.
- Self-assembly of Dendritic Polymers: Multifunctional Nano-carriers and Nano-reactor Applications.
- Carbazole based Dendritic Polymers: Synthesis and Electrochemical Deposition.
- Amphiphilic Star-like Copolymer as Nanocarrier: Synthesis, Encapsulation and Guest Release.
- Multilayer Polymer Film/Microparticle *via* Melting Co-extrusion: Application as Novel Release System and Micro-Encapsulation Device.
- Modified Polymers for Oil-Gas Applications, such as Enhanced Oil Recovery (EOR).

Professional Skills

- Expert with Nuclear magnetic resonance (NMR), Gel permeation chromatography (GPC), Matrix-assisted laser desorption/ion (MALDI), Differential scanning calorimetry (DSC), Thermal gravimetric analysis (TGA), Dynamic light scattering (DLS), UV/Vis and Fluorescence spectrometer, Confocal microscopy, FT-IR spectrometer, and High Power UV generator.
- Familiar with Atomic force microscopy (AFM), Transmission electron microscopy (TEM), Langmuir-Blodge (LB), X-ray photoelectron spectroscopy (XPS), Potentiostat, and Roman spectrometer

Publications

- **Peng-Fei Cao**, Joey Mangadlao, and Rigoberto Advincula* Trefoil Knotted Polymer via Ring-expansion Strategy. *Angewandte Chemie International Edition*, **2015**, 54, 5127-5131.
- **Peng-Fei Cao**, Joey Dacula Mangadlao, Al de Leon, Zhe Su, and Rigoberto Advincula.* Catenated Poly(ε-caprolactone) and Poly(L-lactide) *via* Ring-expansion Strategy. *Macromolecules*, **2015**, 48, 3825-3833.
- **Peng-Fei Cao,**† Zhe Su,† Al de Leon, and Rigoberto Advincula.* Photoswitchable Nanocarrier with Reversible Encapsulation Properties. *ACS Macro Letter*, **2015**, 4, 58-62.
- **Pengfei Cao**, Joey Mangadlao, Rigoberto Advincula.* Stimuli-Responsive Polymers and their Potential Applications in Oil-Gas Industry. *Polymer Reviews*, DOI: 10.1080/15583724.2015.1040553.
- **Peng-Fei Cao**, Edward Foster, Al de Leon, Rigoberto Advincula.* Living Radical Polymerization from Colloidally-templated Nanopatterned Surfaces. *Controlled Radical Polymerization: Materials*. January 1, **2015**, 169-185.
- Ajaykumar Bunha, **Peng-Fei Cao**, Joey Mangadlao, Feimo Shi, Edward Foster, Katrina Pangilian and Rigoberto Advincula.* Polymeric Catenanes by "Click" chemistry and Atom Transfer Radical Coupling, *Chemical Communication*, **2015**, 51, 7528-7531.
- Joey Mangadlao, Al de Leon, Mary Jane Felipe, **Peng-Fei Cao**, Paul Advincula and Rigoberto C. Advincula.* *ACS. Appl. Mater. Interfaces*, **2015**, 7, 10266-10274.
- Joey Mangadlao, **Pengfei Cao**, Rigoberto Advincula.* Smart Cements and cement additives for oil gas operations. *Journal of Petroleum Science and Engineering*, **2015**, 129, 63-76.
- Ajaykumar Bunha, **Peng-Fei Cao**, Joey Mangadlao and Rigoberto Advincula.* Cyclic poly)(vinylcarbazole) via ring-expansion polymerization RAFT (REP-RAFT). *Reactive and Functional polymers*, **2014**, 80, 33-39.
- Al Leon, Brylee Tiu, Joey Mangadlao, Katrina Pangilinan, **Pengfei Cao** and Rigoberto Advincula. Application of Fourier Transform Infrared Imaging. *Handbook of spectroscopy: Second, Enlarged Edition.*
- **Peng-Fei Cao**, Mary Jane Felipe and Rigoberto C. Advincula.* On the Formation and Electropolymerization of a Star Copolymer with Peripheral Carbazoles. *Macromolecular Chemistry and Physics*, **2013**, 214, 386-395.
- **Peng-Fei Cao**, Ajaykumar Bunha, Joey Mangadlao, Mary Jane Felipe, Katrina Irene Mongcopa and Rigoberto Advincula.* Supramolecularly Templated Catenane Initiator and a Controlled Ring Expansion Strategy. *Chemical Communication*, **2012**, 48, 12094-12096.
- **Peng-Fei Cao**, Rong-Xu Zhao, Lin Li, Wen-Wen Yang, Fa Cheng, Yu Chen,* Cong-Hua Lu, Shi-Chun Jiang.* Covalently stabilizied vesicles derived from amphiphilic multiarm star polymers: Preparation, characterization, and their capability of hosting different polarity of guests. *Journal of Polymer Science, Part A: Polymer Chemistry*, **2012**, *50*, 227-236.
- **Peng-Fei Cao**, Rui Xiang, Xun-Yong Liu, Chun-Xiao Zhang, Fa Cheng, Yu Chen.* Modulating the Guest Encapsulation and Release Properties of Multi-Arm Star Polyethylenimine-*block*-Poly (ε-caprolactone). *Journal of Ploymer Science, Part A: Ploymer Chemistry*, **2009**, 47, 5184-5193.
- Xing-Long Lou, Fa Cheng, **Peng-Fei Cao**, Qiang Tang, Hua-ji Liu, Yu Chen.* Self-assembled Supramolecular Nanocarrier Hosting Two Kinds of Guests in Site-Isolation State. *Chemistry-A European Journal*, **2009**, 15, 11566-11572.
- Xulong Cao, Zhenquan Li, Xinwang Song, Xiaohong Cui, **Pengfei Cao,** Huaji Liu, Fa Cheng, Yu Chen*. Core-shell type multiarm star poly (ε-caprolactone) with high molecular weigh hyperbranched polyethylenimine as core: Synthesis, characterization and encapsulation properties. *European Polymer Journal***, 2008**, 44, 1060-1070.

Conference Presentations

- **Pengfei Cao** and Rigoberto C. Advincula**,** Trefoil knotted polymer *via* ring-expansion strategy. ***Oral presentation***, New Orleans, Spring 2013, ACS National Meeting.
- **Pengfei Cao,** Mary Jane Felipe and Rigoberto C. Advincula, Synthesis and Electrochemical polymerization of a Star-like Copolymer with Peripheral Carbazoles. ***Oral Presentation***, New Orleans, Spring 2013, ACS National Meeting.
- **Pengfei Cao,** Paul A. Advincula and Rigoberto C. Advincula, Synthesis of Catenated poly(ε-caprolactone) *via* Ring-expansion Strategy. ***Oral Presentation***, Indianapolis, Fall 2013, ACS National Meeting.
- **Peng-Fei Cao**, Pau A. Advincula and Rigoberto C. Advincula, Synthesis of Trefoil Knotted Poly(ε-caprolactone) *via* Cu(I)-Template Method and Ring-expansion Strategy. ***Poster Presentation,*** Indianapolis, Fall 2013, ACS National Meeting.

Award:

Bayer Award of 2014 (top award in Macromolecular Department at Case)
Samsung Scholarship of 2009 (one of the top awards in Tianjin University)
Excellent Student Cadre of Tianjin University in 2009
TEDA-PPG-Tianjin University Scholarship of 2007
Three A's Student of Tianjin University in 2005 to 2007

Journal Referee

Polymer Reviews, Reactive and Functional Polymer, and Macromolecular Research

Teaching Experience

- Teaching Assistant of Organic Chemistry Lab. (2010.9-2012.5, four semesters), Department of Chemistry, University of Houston
- Teaching Assistant of Polymer Chemistry Lab. (2013.9-2015.5, four semesters), Teaching Assistant of Polymer Chemistry. (Fall semester of 2014).

  Department of Macromolecular Science and Engineering, Case Western Reserve University.
- Help Professor mentoring Master Students