



CSE International Student Symposium 2017

CSE : Graduate School of Chemical Sciences and Engineering, Hokkaido University

趣 旨 : 総合化学院関連研究室を訪問している短期留学生や訪問学生と総合化学院学生との交流を促進し、総合化学院学生の国際化に貢献するため、シンポジウムを開催する。

日 時 : 平成29年7月26日(水) 午前9時30分～午後4時30分

場 所 : フロンティア応用科学研究棟2階 セミナー室(2), ホワイエ(ポスター)

主 催 : 北海道大学大学院総合化学院(CSE)

共 催 : フロンティア化学教育研究センター(FCC)

運 営 : 工学研究院 応用化学部門 高分子化学研究室

予 定

9 : 30 ~ 10 : 30

招待講演 : Morphology, Photophysical Properties, and Sensor Application of Luminescent Electrospun Nanofibers Based on Conjugated Moiety Containing Copolymers

National Taipei University of Technology (Taipei Tech), Taiwan

Associate Professor Chi-Ching Kuo

10 : 30 ~ 11 : 40

Poster Presentations for Students at Other Universities.

ポスター発表 : 北大以外の学生(学部生も可)

11 : 40 ~ 13 : 00 Lunch 昼食

13 : 00 ~ 14 : 10

Poster Presentations for CSE Students

ポスター発表 : 北大の学生(学部生も可)

14 : 30 ~ 15 : 30

招待講演 : Photodynamically Controlled Release of Anti-cancer Drugs from Tumor-targeted ROS-degradable Polymeric Micelles

Korean Advanced Institute of Science & Technology (KAIST), South Korea

Associate Professor Yoon Sung Nam

15 : 30 ~ 16 : 30

招待講演 : COC Chemistry: Functional Epoxide Monomers for Biological Applications

Ulsan National Institute of Science and Technology (UNIST), South Korea

Associate Professor Byeong-Su Kim

17 : 30 ~

懇親会 : 参加費 1,000 円 (ジンパの予定)

ポスター発表登録 : ポスター発表を希望の方は7月14日(金)までに下記まで連絡の上、要旨集(A4版一枚、フォーマット有)を7月18日(火)までに提出ください。参加無料。

連絡先 : 工学研究院 応用化学部門高分子化学研究室 佐藤敏文(内6602) satoh@eng.hokudai.ac.jp





CSE International Student Symposium 2017

CSE : Graduate School of Chemical Sciences and Engineering, Hokkaido University

Date: July 26th, 2017, 9:30 am ~ 4:30 pm

Venue: Seminar Room 2 (2nd floor), Frontier Research in Applied Sciences Building,
Faculty of Engineering, Hokkaido University

Organizer: Graduate School of Chemical Sciences and Engineering(CSE), Hokkaido University

Co-organizer: Frontier Chemistry Center (FCC), Hokkaido University,

Committee: Laboratory of Polymer Chemistry, Division of Applied Chemistry,
Faculty of Engineering, Hokkaido University

Schedule:

9:30 am ~ 10:30 am: **Invited Lecture**

“Morphology, Photophysical Properties, and Sensor Application of Luminescent
Electrospun Nanofibers Based on Conjugated Moiety Containing Copolymers”

National Taipei University of Technology (Taipei Tech), Taiwan

Associate Professor Chi-Ching Kuo

10:30 am ~ 11:40 am: **Poster Presentations for Students at Other Universities**

11:40 am ~ 1:00 pm: Lunch

1:00 pm ~ 2:10 pm: **Poster Presentations for CSE Students**

2:30 pm ~ 3:30 pm: **Invited Lecture**

“Photodynamically Controlled Release of Anti-cancer Drugs from Tumor-targeted
ROS-degradable Polymeric Micelles”

Korean Advanced Institute of Science & Technology (KAIST), South Korea

Associate Professor Yoon Sung Nam

3:30 pm ~ 4:30 pm: **Invited Lecture**

“COC Chemistry: Functional Epoxide Monomers for Biological Applications”

Ulsan National Institute of Science and Technology (UNIST), South Korea

Associate Professor Byeong-Su Kim

5:30 pm ~

Banquet: 1,000 yen

Poster Registration: Please contact the following e-mail for poster presentation until July 14th.

The committee requests you an abstract (A4, one page) for poster presentation until July 18th.

The registration fee is free.

Contact: Toshifumi Satoh, Laboratory of Polymer Chemistry, Division of Applied Chemistry,
Hokkaido University, satoh@eng.hokudai.ac.jp



演題：**Morphology, Photophysical Properties, and Sensor Application of Luminescent Electrospun Nanofibers Based on Conjugated Moiety Containing Copolymers**

講師：**Assoc. Prof. Chi-Ching Kuo**

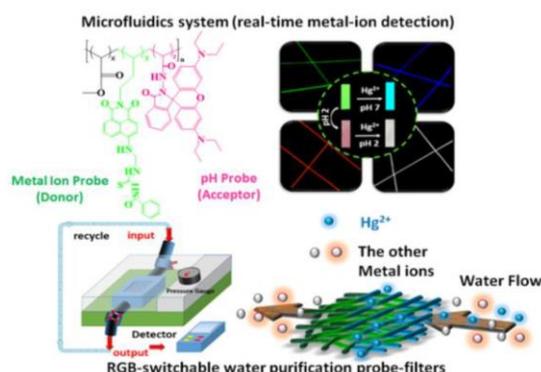
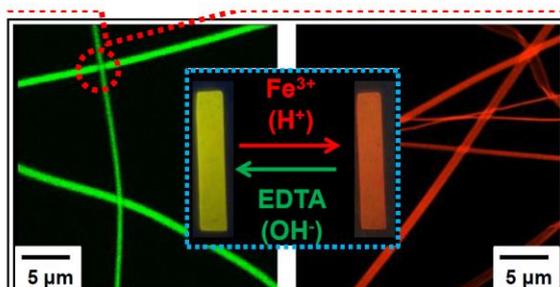


Institute of Organic and Polymeric Materials,
National Taipei University of Technology,
10608 Taipei, Taiwan

日時：2017年7月26日（水）9:30~10:30

場所：工学部フロンティア応用科学研究棟セミナー室2

要旨：Electrospinning (ES) has emerged as a new technique to produce various functional fibers. Conjugated polymer ES fibers showed distinct electronic and optoelectronic properties as compared with films due to the geometrical confinement of ES process. Recently, conjugated copolymers based ES fibers with different kinds of morphology and functionality are reported. The morphology and properties of electrospun nanofibers prepared from conjugated copolymers have not been explored yet. In this study, we studied morphology, photophysical property, and sensory applications for luminescent electrospun nanofibers based on conjugated moiety containing copolymers.



本講演は、大学院総合化学院『化学研究先端講義（修士課程選択科目）／総合化学特別研究第二（博士後期課程選択科目）』の一部として認定されています。

（ただし、14:30からのProf. Yoon Sung Namの講演、もしくは15:30からのProf. Byeong-Su Kimの講演のどちらかと併せて2件以上の聴講で出席一回とカウントします。）

連絡先：工学研究院応用化学部門 佐藤 敏文（内線：6602）



演題: **Photodynamically Controlled Release of Anti-cancer Drugs from Tumor-targeted ROS-degradable Polymeric Micelles**



講師: **Assoc. Prof. Yoon Sung Nam**

Department of Materials Science and Engineering,
Korea Advanced Institute of Science and Technology
(KAIST), Daejeon 34141, Republic of Korea

日時: 2017年7月26日(水) 14:30~15:30

場所: 工学部フロンティア応用科学研究棟セミナー室2

要旨: In vivo tumor-targeted delivery of nanoparticles encapsulating anti-cancer therapeutics has been pursued for decades to minimize the side effects of cancer chemotherapy. Despite their impressive effects in vitro, limited in vivo benefits have hindered their clinical applications. Well-designed targeting and controlled release capabilities of nanoparticles are often compromised because of complex in vivo situations. Here, we propose a new concept of remote activation of cancer-targeted nanoparticles to increase anti-cancer therapeutics in vivo by implementing photodynamic effects within reactive oxygen species (ROS)-degradable polythioketal nanoparticles incorporating photosensitizers. The polythioketal-based polymer micelles were fabricated from the self-assembly of the amphiphilic block copolymer of poly(1,4-phenyleneacetone dimethylene thioketal) (PPADT) and polyethylene glycol (PEG). TPP and paclitaxel were encapsulated within PEG-*b*-PPADT micelles, whereby folic acid was decorated on the surface of the micelles by incorporating folic acid-PEG-*b*-PPADT. The light-induced degradation of the micelles was confirmed using NMR and GPC. HeLa cells were treated with the micelles at various concentrations of paclitaxel and exposed to visible light illumination (650 nm, 70 mW cm⁻²) for 20 min. The intravenous injections of the micelles with a low paclitaxel dosage (1 mg kg⁻¹), followed by visible light illumination on tumor sites were performed. Localized irradiation of visible light to the nanoparticles targeted to tumor sites selectively activates boosted release of anti-cancer drugs. Studies using a xenograft tumor mouse model demonstrated that the in vivo therapeutic effects are very efficiently controlled by light illumination. Our study suggests that the ROS-sensitive degradable polymeric nanoparticles can be used as a new promising platform for light-controlled delivery of anti-cancer therapeutics.

本講演は、大学院総合化学院『化学研究先端講義（修士課程選択科目）／総合化学特別研究第二（博士後期課程選択科目）』の一部として認定されています。

（ただし、9:30からのProf. Chi-Ching Kuoの講演、もしくは15:30からのProf. Byeong-Su Kimの講演のどちらかと併せて2件以上の聴講で出席一回とカウントします。）

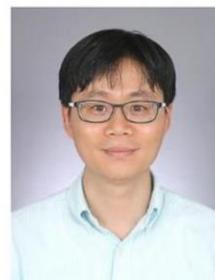
連絡先: 工学研究院応用化学部門 佐藤 敏文 (内線: 6602)



演題：**COC Chemistry: Functional Epoxide Monomers for Biological Applications**

講師：**Assoc. Prof. Byeong-Su Kim**

Department of Chemistry,
Ulsan National Institute of Science and
Technology (UNIST),
Ulsan 44919, Republic of Korea



日時：2017年7月26日（水）15:30~16:30

場所：工学部フロンティア応用科学研究棟セミナー室2

要旨：

Poly(ethylene glycol) (PEG) is by far the most well-known synthetic biocompatible polymer for its widespread use in the food, cosmetics, and biomedical applications. However, its limited functionality combined with its challenging synthetic nature often poses challenges for advanced material design and synthesis. Recently, polyglycerols and their derivatives are emerging as alternatives for next-generation biocompatible polymers with controlled functionalities and architectures. The present talk will cover the design and the synthesis of well-defined stimuli-responsive polyethers such as pH-, light-, and redox-stimuli for biocompatible and biodegradable smart drug delivery systems. Furthermore, our recent effort in the development of novel functional epoxide monomers with multifunctionality will be highlighted.

本講演は、大学院総合化学院『化学研究先端講義（修士課程選択科目）／総合化学特別研究第二（博士後期課程選択科目）』の一部として認定されています。

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