Division of Material Chemistry	Research field	Physical Chemistry	Lab. ID MC09
Laboratory web site	http://kohka.ch.t.kanazawa-u.ac.jp/lab1/lab1.html		

Research subjects

The target of our laboratory is about self-assembly of surfactants. We are investigating the self-assembly to clarify it from the standpoint of physical chemistry by experimental verification with several techniques, especially fluorescence probe method and atomic force microscopy (AFM). The following research themes are progressing; (1) Aqueous solution property of amino acid-type surfactants, (2) interaction between amino acid-type surfactant and biomaterials, (3) synthesize of novel Gemini-type surfactants, (4) development of stimuli-responsible surfactant system, (5) to search a new fluorescence probe, (6) to clarify of state of molecular aggregates in aqueous solution, (7) submolecular scale visualization of self-assembled structures and their functions at solid/liquid interfaces with AFM, and so on.

Master/Doctor course: Education policy, curriculum, typical activity in the laboratory

The main point of guideline of our laboratory is that students acquire both technical knowledge about interfacial chemistry and the problem-solving ability through real investigation and experience about their research themes by themselves. All students take one seminar once a week about colloid and interface chemistry using textbook. All laboratory members attend a monthly meeting. All students make a presentation about their results and discuss it each other in the meeting. We have a weakly journal review meeting, where student select one journal from new articles in their research field and introduce it concisely from the standpoint of the relationship with own theme.

Master course student: Students take some classes about general chemistry as well as physical chemistry and interface chemistry in first semester of first grade. Student is recommended to make a presentation at domestic or international conferences.

Doctor course student: Student is recommended to participate some symposiums and workshops and must make a presentation at international conferences. It is necessary that at least one paper is published in the international journal having a valid impact factor for PhD conferment.

Daily life in the laboratory, etc.

Graduate students should play a central role in the laboratory. All students have own working space for in laboratory as well as own desk in study room. Both master/doctor students and bachelor students share the study room and often discuss about research and have a chattering about daily life. There is a tea and coffee space for refreshment in the study room. In addition to investigation, students hold many activities, like as welcome party for new member, BBQ with cherry-blossom viewing, laboratory excursion, graduation party, and so on.

Message or comments by the laboratory faculty staffs

All students are the principal parts in the laboratory life! Each student can select own research theme and must execute it by oneself. Faculty stuffs are delighted to support your investigation. Even though you do not have good results in research immediately, please try it perseveringly. Everyday of stack is very important in order to obtain the research results and it will be your precious property. It is important to learn the basic knowledge and skill systematically in university. If you learn them and the problem-solving ability in laboratory life, you can correspond every problem in future.

We have five foreign students in in the past three years. They have enjoyed in our laboratory and Japanese life. Japanese students and we are careful to communicate with the foreign students to support his or her study and daily life.

Recent Master theses in these 3 years (+ more if appropriate)

year.month	Thesis title (including English translation of Japanese thesis title)
2017.3	Investigation of the interaction between phospholipid vesicles and quaternary ammonium type cationic surfactants
2017.3	Micelle-Vesicle Transition by Cationic Surfactants Containing Thioester
2016.9	Synthesis of surfactant from Carnosine and study of the anti-oxidation property
2016.3	Effect of amino acid residues on the interactio between glutamine type surfactant and phospholipid vesicles
2016.3	Aggregation Behavior of Double-Chained Imidazolium Surfactants
2016.3	Micelle Formation by Generation of Bola-type Cationic Surfactants
2016.3	Generation of Disulfide Linked Gemini Cationic Surfactants in Aqueous Solution
2015.3	Solubilization of Genistein into Phospholipid Vesicle and Its Antioxidation Property
2015.3	Micellar Solubilization Behavior Revealed by Pyrene Excimer Fluorescence
2015.3	Micelle-Vesicle Transition by Disulfide-Linked Gemini Surfactants
2014.9	Dispersion and Coagulation Controls of Humic Acid for Treatment of Cesium Ions

2014.3	Nano-fiber Formation of Diphenylalanine-type Surfactant by Binding of Dye
2014.3	Aggregation Behavior of Gemini Imidazolium Surfactants
2013.3	A Study of Interaction between Phospholipid Vesicle and Surfactant from the Viewpoint of Lamella Interval
2013.3	Aggregation Behavior of Double-Chained Cationic Surfactants
Recent Doctoral theses in these 3 years (+ more if appropriate)	
year.month	Thesis title (including English translation of Japanese thesis title)
2014.9	A Study of Encapsulation and Antioxidant Properties of Genistein in Caseinate and Liposome Systems
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