

Division of Natural System	Research field	Chemical and Process Engineering	Lab. ID
			NS14
Laboratory web site	http://tamulabo.w3.kanazawa-u.ac.jp/		
Research subjects			
<p>Chemical and process engineering researches from basic study to application are carried out in our laboratory. Main subjects: Development of supercritical CO₂ process towards green and sustainable society, Development of multi-scale kinetics, and Hydrothermal synthesis of cathode materials for lithium-ion battery and simulation of lithium intercalation electrodes, Study on bacterial diversity analysis of KOSA bioaerosols, DNA analysis of bioaerosols over the Antarctic, and Analysis of the curing process of UV cured resin, Development of the expert system of polymer production process</p>			
Master/Doctor course: Education policy, curriculum, typical activity in the laboratory			
<p>Master course students decide practical subject for master thesis with teachers. It is desirable for students to attend scientific society by graduation.</p> <p>The laboratory is managed by a weekly meeting which must be attended by staffs and students, where analysis and experimental support for research are discussed and determined.</p>			
Daily life in the laboratory, etc.			
<p>Our laboratory's students of undergraduate, master, doctor share the room, and everyday free discussion on chemical engineering or related topics. Many laboratory activities are organized like, welcome party for new students, summer workshop, a year-end party, etc.</p>			
Message or comments by the laboratory faculty staffs			
<p>Our Lab. is recruiting graduate and research students. We always welcome enrollment by students and ad hoc visits by young researchers. Those with interest in the development of supercritical fluid technology or on related fundamental studies are invited to contact us in Japanese or English.</p>			
Recent Master theses in these 3 years (+ more if appropriate)			
year.month	Thesis title (including English translation of Japanese thesis title)		
2016.3	Equilibrium electrode potential and charge / discharge voltage characteristics for lithium-ion batteries		
2016.3	The suggestion and evaluation of the observation items for atmospheric bioaerosols		
2016.3	Supercritical carbon dioxide extraction of antioxidant materials from peanut skin		
2015.3	Measurement and correlation of solubility of anthraquinone dyestuffs in supercritical carbon dioxide		
2015.3	Antioxidant phenolics extract from <i>Sakura</i> by supercritical carbon dioxide		
2015.3	Supercritical water hydrothermal synthesis of cathode active materials for lithium-ion battery in tubular flow reactor		
2015.3	Diffusion coefficient measurement of active materials for lithium-ion batteries		
2015.3	Charge / discharge voltage characteristics of active materials for lithium-ion batteries		
2015.3	Study on bacterial diversity analysis of KOSA bioaerosols and effective utilization of isolated bacteria		
2015.3	Efficient utilization of the biomass using novel useful microorganism		
2015.3	DNA analysis of bioaerosols over the Antarctic		
2015.3	Biaxial stretchability and thickness uniformity control of polyolefins		
2015.3	Study on highly functional expression by stretching of polypropylene film		
2014.9	Mutual Diffusion Coefficients of Lithium Ion-Vacancy in the Cathode Material for Lithium Ion Battery		
2014.3	Development of the biaxial stretching property by controlling tacticity and structural analysis		
2014.3	Dynamic observation and structure analysis for biaxial stretching PA6 films		
2014.3	The Sequential Analysis of Film Deformation Behavior during Successive Biaxial Stretching Process		
2014.3	Prediction for the retardation of optical film in the stretching process		
2014.3	The mathematical model for saccharification and lactic acid fermentation to utilize a biomass		
2014.3	Assessment of impacts by direct sampling and observation of Kosa bioaerosols		
2014.3	The conductivity of conducting polymer composites with cellulose nanofibers		
2014.3	Pressure Dependence of Glass Transition Temperature of Hydrophilic Polymer at High Pressure Carbon Dioxide and Glass Transition Temperature Correlation by Molecular Weight Distribution		
2014.3	Development of Solid-Liquid Measurement Apparatus incorporating with Thermal and Light Scattering Techniques —Measurement and Correlation of Binary Carboxylic Acid Mixtures—		

2014.3	Cosolvent-modified supercritical carbon dioxide extraction of phenolic compounds from bamboo grass (Sasa Palmata)
2014.3	Solubility Calculation of Solid Organic Compounds in Supercritical Carbon Dioxide by Solution Model
2014.3	Measurement and Analysis of Sublimation Pressure of Disperse Dye by Using Gas Chromatography
2013.3	Prediction of the internal stress state in film winding
2013.3	Modeling and simulation of deformation behavior during stretching of PTFE film
2013.3	Relationship between the retardation and mechanical properties of optical film in the stretching process
2013.3	Study on the improvement of the conductivity of poly(3,4-ethylenedioxythiophene):polystyrenesulfonic acid(PEDOT:PSS)
2013.3	Measurement and correlation of liquid-liquid equilibria for ionic liquid, sulfur compound and hydrocarbon
2013.3	Effects of dehydration and catalyst on surface modification of nano-size particles in supercritical CO ₂
2012.9	Density simulation of cyclohexane + decalin mixture by molecular dynamics
Recent Doctoral theses in these 3 years (+ more if appropriate)	
year.month	Thesis title (including English translation of Japanese thesis title)
2015.3	Electrochemical-characterization and discharge/charge voltage simulation of lithium intercalation electrode
2014.9	Measurement and correlation of solubility of anthraquinone derivatives in supercritical carbon dioxide
2014.3	Basic study on the deformation behavior in heat-shrinkable polyester film
2014.3	Polymer Structure and Processing of Newly-Developed Films
Laboratory mail address	
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