MDプログラム　QE1スケジュール　2017.9.4　MDプログラム講義室

発表15分、質疑23分

	学生		所属 専攻	指導教員	テーマ名	テーマの領域	テーマ説明
11:20– 12:00	Chanon Pornrungroj	M2b	理学 化学専攻	及川英俊	Photocatalytic Functions of Organic Hybridized Nanocrystal (有機ハイブリッドナノ結晶の光触媒機能に関する研究)	機能性ナノ結晶	The conventional photocatalysts such as TiO_2 is facing a big limitation for practical applications due to its wide band-gap energy, thus only less than 5% of the solar irradiation can be utilized. Here, we present the pioneer approach on using a narrow band-gap organic nanocrystals as a visible-light-responsive photocatalyst for water-splitting.
12:00– 12:40	ZHAO Tianbo 趙　天波	M2b	工学 材料システム工学専攻	佐藤　裕	Effect of Welding Heat-input on Mechanical Properties of Friction Stir Welded Heat-treatable Aluminum Alloys (熱処理型アルミニウム合金摩擦攪拌接合部の機械的特性に及ぼす接合入熱の影響)	接合工学	In this study, a calorimetrical method was adopted to experimentally measure the heat-input of friction stir welded heat-treatable aluminum alloys. Effect of welding parameters on the heat-inputs was analyzed and an empirical equation predicting heat-input using welding input variables such as tool travel speed, tool rotational speed and material thermal conductivity was established using multiple regression. Moreover, effect of heat-input on the mechanical properties such as tensile strength and material soften zone width of friction stir welded heat-treatable aluminum alloy 6063 was studied. Well fitted correlations of mechanical properties and heat-inputs were established using linear regression. Finite element method was applied for the verification of experimental results. This study reveals that mechanical properties of friction stir welded heat-treatable aluminum alloys can be precisely predicted using welding heat-input predicted with welding input variables.
12:40– 13:20	CHEN Linghan 陳　凌寒	M2b	工学 知能デバイス材料学専攻	加藤秀実	Hierarchical Nanoporous Graphene with Highly Catalytic Performance towards Electrochemical Hydrogen Production (階層構造を持つナノ多孔質グラフェンを用いた高効率水素発生電極の開発)	ナノポーラス材料	High chemical doping level and favorable electrical conductivity have been demonstrated to be one of essential factors for metal-free graphene electrode to realize superior catalytic performances in electrochemical hydrogen evolution. However, the excess amount of chemical doping level significantly reduces their electrical conductivity due to the induced defective structures, being less catalytically active in hydrogen evolution reaction (HER). In this study, we fabricated a hierarchical nanoporous graphene keeping remarkably high chemical dopants' concentrations without sacrificing the excellent electrical conductivity of graphene substrate, leading to superb HER activity among Pt-free catalysts.