



JGP Seminar



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“Functionalization of Poly(vinyl alcohol) for Targeted Personal Products”

Abstract: Cationic polymers play a crucial role in modern day shampoo formulations increasing the efficacy of silicon emulsion deposition and improve the hair management. A wide range of cationic polymers, known as polyquats, are currently available, however, none show high levels of tunability and biodegradation. The aim of the project was to synthesise cationic polymers for potential use within conditioning shampoo formulations. The polymers were designed to couple the efficacy of synthetic polymers with the biodegradability. Poly(vinyl alcohol) (PVA) was selected as the polymer backbone to be modified as it is a synthetic, water soluble, biocompatible and biodegradable polymer. The lecture reports the grafting of PVA with hyperbranched polyglycerol followed by reaction with glycidyltrimethylammonium chloride (GTMAC), and subsequent quarterization with trimethylamine to prepare cationic polymers with a range of charge densities. Furthermore, hydrophobic long alkyl chains were also incorporated into the polymer microstructures using epoxyoctane in order to fine-tune the hydrophobicity of the resulting cationic polymers. The modification techniques used were based on the ring opening polymerization of epoxides and single electron transfer-living radical polymerization (SET-LRP).

A range of novel cationic polymers were produced with different charge densities and hydrophobicities and were evaluated for their potential use in shampoo formulations, the results of which will be discussed.

日時: 平成28年10月14日(金) 13:00 – 14:30
場所: 桂キャンパス A2棟 304号室

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