

Abstract Submitted  
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**Sequences of Mixed Ions in Polypeptoid Surfaces** HILDA BUSS, WENDY VAN ZOELLEN, NATHAN ELLEBRACHT, University of California, Berkeley, RONALD ZUCKERMANN, Lawrence Berkeley National Lab, RACHEL SEGALMAN, University of California, Berkeley — Polypeptoids, a unique, sequence specific class of polymers, are used to investigate the influence of charge spacing, grouping, and chemistry on the surface properties of polymer coatings. Short peptoid oligomers composed of cationic and anionic groups, and superhydrophobic (fluorinated) functionalities were attached to a synthetic backbone to form comb-shaped molecules. These molecules display different surface chemistry as a function of side chain composition, as indicated by near edge X-ray absorption fine structure spectroscopy (NEXAFS). A 50:50 ratio of peptoid:fluorinated functionality resulted in optimal surface segregation of the comb block while preventing surface reconstruction upon immersing the polymer films in water. Antifouling experiments with the green algae *Ulva* showed that polymers with non-ionic peptoid functional groups resulted in superior antifouling coatings compared to polymers with charged peptoids. The effects of decreasing the peptoid charge spacing even further (zwitterionic side chains) and exploring stronger ionic moieties, such as phosphate groups, will also be discussed.

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