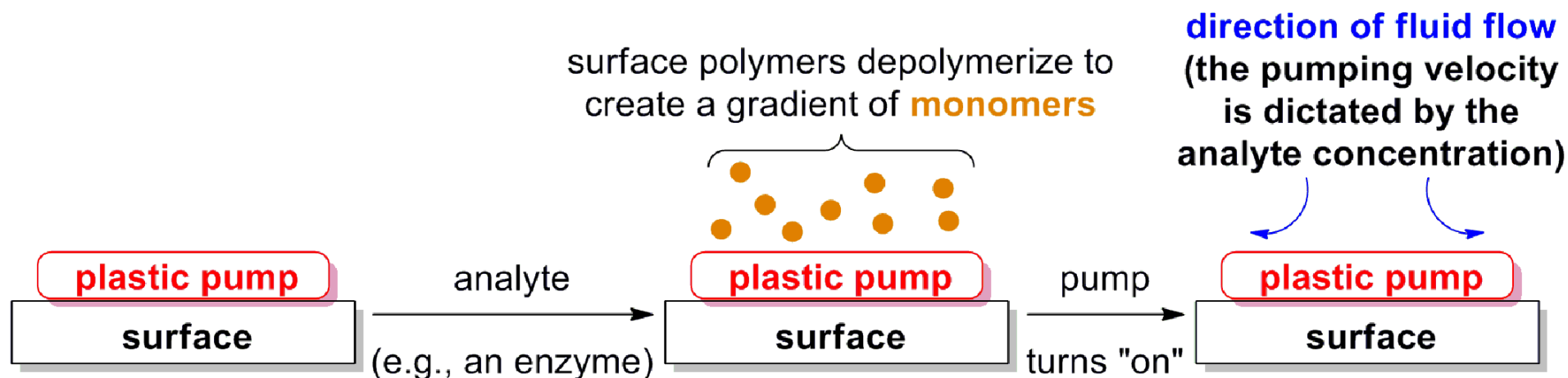




## Self-Powered Microscale Pumps Based on Analyte-Initiated Depolymerization Reactions



We have designed a set of microscale pumps that consist of insoluble polymer films that depolymerize to release soluble monomeric products when exposed to a specific analyte. Products formed as a result of the depolymerization reaction amplify the signal and create a concentration gradient that pumps fluids and insoluble particles away from the bulk polymer due to a diffusiophoretic mechanism. These pumps are tunable to respond to a variety of analytes, ranging from small molecules to enzymes.