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Role of surface properties in bacterial attachment JACINTA CONRAD, SUMEDHA SHARMA, University of Houston — Bacterial biofilms foul a wide range of engineered surfaces, from pipelines to membranes to biomedical implants, and lead to deleterious costs for industry and for human health. Designing strategies to reduce bacterial fouling requires fundamental understanding of mechanisms by which bacteria attach to surfaces. We investigate the attachment of *Escherichia coli* on silanized glass surfaces during flow through a linear channel at flow rates of 0.1–1 mL/min using confocal microscopy. We deposit self-assembled monolayers of organosilanes on glass and track the position and orientation of bacteria deposited on these surfaces during flow using high-throughput image processing algorithms. Here, we report differences in deposition rate and surface-tethered motion of cells as a function of surface charge and surface energy, suggesting that attachment of bacteria on these engineered surfaces is dominated by different physical mechanisms.

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