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Molecular Dynamics in Self-Assembled Monolayers JASON BOCHINSKI, DERRICK STEVENS, MARY SCOTT, LAURA GUY, CASEY DEDEUGD, LAURA CLARKE, North Carolina State University — Silane self-assembled monolayers (SAMs) are an important tool for both scientific research and technological applications. Despite their widespread use, few experimental investigations have addressed molecular motion within these films, which offer a unique and useful physical system for fundamental scientific studies, such as observing dipolar and other glass transitions in two-dimensions. In addition, relaxations such as "rotator" phases where molecular groups rotate in a plane parallel to the surface have been correlated with film conductivity, adhesive, and wetting properties. We utilize surface-sensitive, dielectric relaxation spectroscopy to probe molecular motion as a function of temperature within silane chemistry-based monolayers formed upon interdigitated electrodes. Our latest results exploring a previously published motion as well as comparisons to linear polymer films will be discussed.

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