

Surface-induced dissociation (SID) using derivatized silicon substrates

New SID surfaces with various functional groups, structures and properties can be explored and developed based on the established silicon derivatization chemistry. Low-energy collisions of small molecules with self-assembled monolayers (SAMs) of alkylsilanes on silicon wafers show that derivatization of silicon is an alternative method to make surfaces that result in efficient fragmentation and reduced neutralization of projectile ions. Compared to alkanethiolate SAMs on gold, silicon surfaces derivatized by long-chain alkylsilanes provide similar internal vibrational energy deposition and surface cleanliness, but exhibit less ion neutralization which might be due to the lower conductivity of the silicon substrate.

