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(54) Title: MODIFIED CARBON, SILICON AND GERMANIUM SURFACES

(57) Abstract: Chemically-modified surfaces on unoxidized, bromine- or iodine- terminated carbon, silicon, and germanium substrate are disclosed. Visible light mediates the reaction of protected ω -modified, α -unsaturated aminoalkenes (preferred) with bromine- iodine- or other functional group- terminated carbon, silicon, or germanium surfaces. Removal of the protecting group yields an aminoalkane-modified silicon surface. These amino groups can be coupled to terminal-modified oligonucleotides using a bifunctional cross-linker, thereby permitting the preparation of modified surfaces and arrays. Methods for controlling the surface density of molecules attached to the substrate are also disclosed.