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- (71) Applicant: **WISCONSIN ALUMNI RESEARCH FOUNDATION** [US/US], 614 Walnut Street, Madison, WI 53707-7365 (US)
- (72) Inventors: **HAMMERS, Robert, J.**, 221 Shiloh Drive, Madison, WI 53705 (US) **SMITH, Lloyd, M.**, 1115 Amherst Drive, Madison, WI 53705 (US) **STROTHER, Todd, C.**, 17 Sherman Terrace, #2, Madison, WI 53704 (US) **CAI, Wei**, 282 Eagle Heights, Apt G Madison, WI 53705 (US)
- (74) Agents: **LEONE, Joseph, T.** et al, DeWitt Ross & Stevens SC, 8000 Excelsior Drive, Madison, WI 53717-1914 (US).
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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.