

UV Photoactivated Room Temperature CVD of Aluminum on Functionalized Self-Assembled Monolayers Adsorbed on Au: Supporting Information

*Zhiwei Shi, Peng Lu, Amy V. Walker**

Department of Materials Science and Engineering, University of Texas at Dallas, RL 10, 800 W.
Campbell Rd, Richardson, TX 75080

†Present Address: General Motors R&D Center, 30500 Mound Rd, Warren, MI 48090.

* Corresponding Author: Email: amy.walker@utdallas.edu; ph: 972 883 5780; fax: 972 883 5764

1. Experiment Geometry

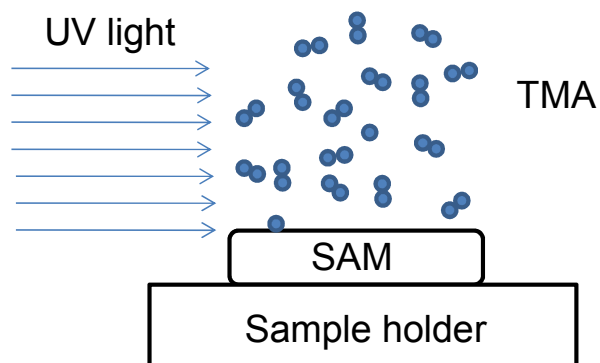


Figure S1. Schematic of the experiment geometry. To minimize the UV photooxidation of the SAM, the light from the deuterium arc lamp is introduced into the chamber parallel to the SAM surface. The TMA is photolyzed above the SAM surface.

2. UV Photoactivated Al CVD on -OH Terminated SAMs

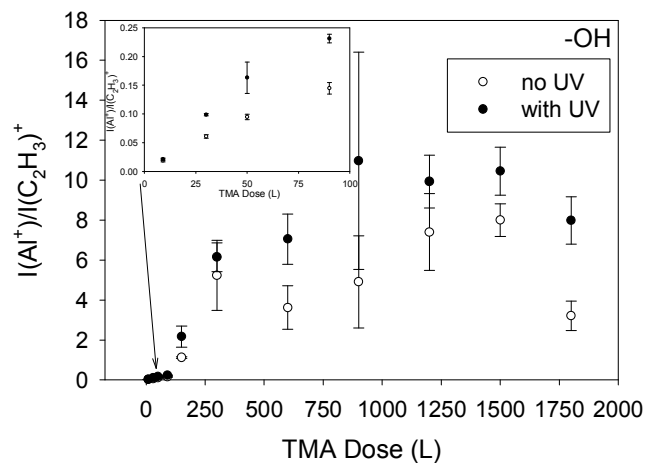


Figure S2. Ratio of the ion intensities of Al^+ to C_2H_3^+ after -OH terminated SAMs have been exposed to TMA doses from 9L to 1800 L with the following reaction conditions: under UV irradiation from a D_2 arc lamp (closed circles) and without UV irradiation (open circles).

3. Negative Ion Mass Spectra of $-CH_3$, $-OH$ and $-COOH$ Terminated SAMs After Exposure to UV Light for 1 h

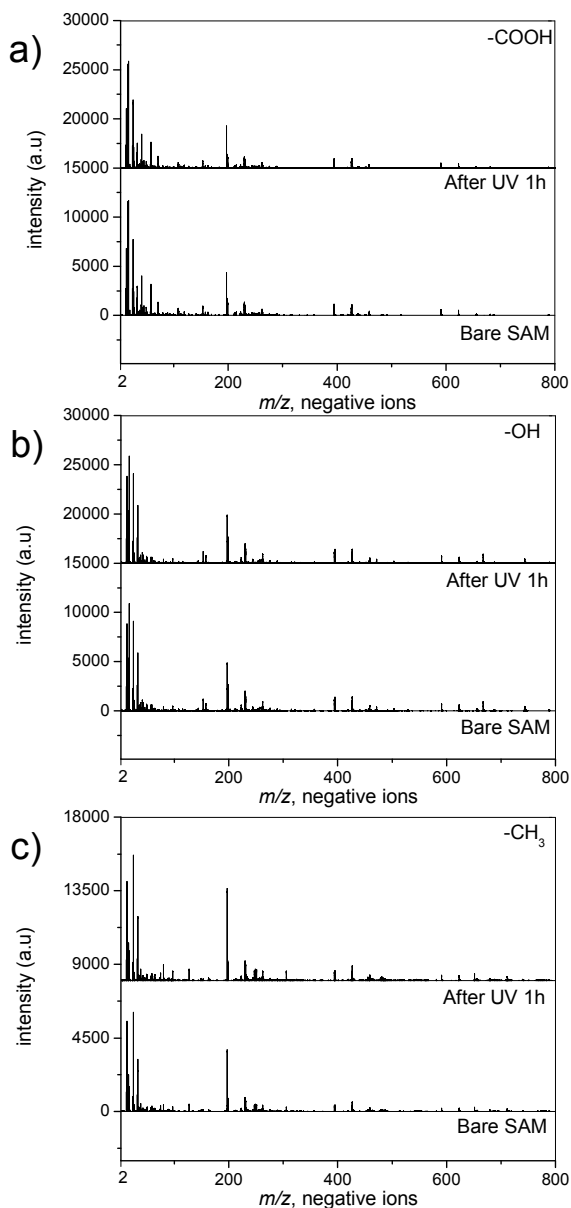


Figure S3. High resolution negative ion spectra m/z 2 – 600 of (a) $-COOH$, (b) $-OH$ and (c) $-CH_3$ terminated SAMs after exposure to light from a 30 W deuterium arc lamp for 1 h using the experimental geometry employed in these experiments.

4. SEM Images of Al Deposited on Patterned $-\text{CH}_3/-\text{COOH}$ SAM Surfaces

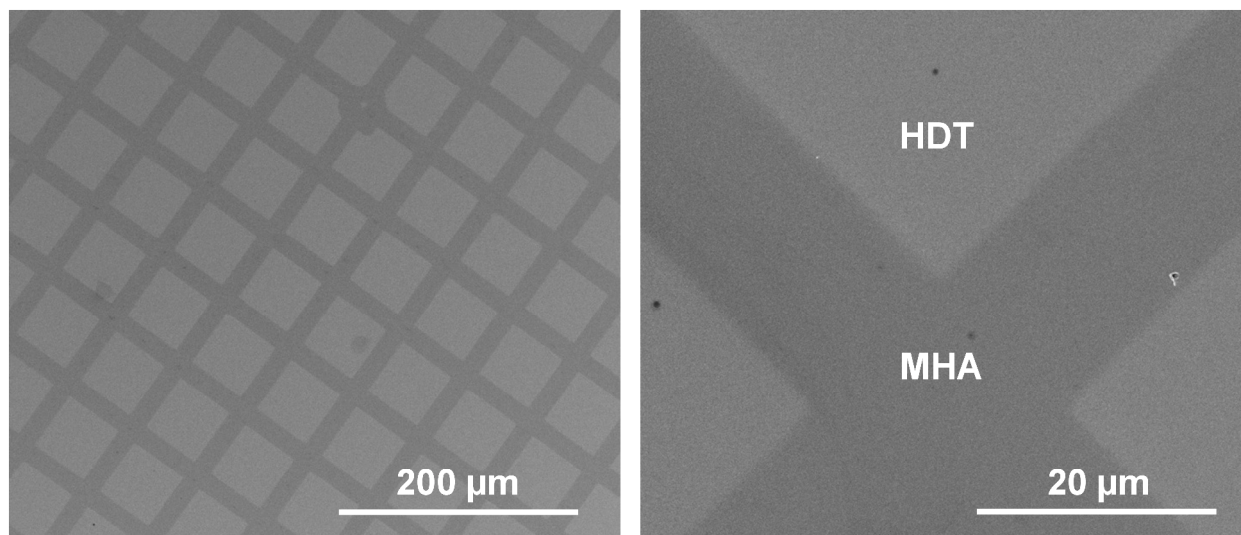


Figure S4. SEM images of a patterned $-\text{CH}_3/-\text{COOH}$ terminated SAM surface was exposed to 1800 L TMA under UV irradiation.