

Supporting information:

Interaction of carboxylic acids and water ice probed by argon ion induced chemical sputtering

Jobin Cyriac and T. Pradeep*

DST Unit on Nanoscience (DST UNS),

Department of Chemistry and Sophisticated Analytical Instruments Facility,

Indian Institute of Technology Madras, Chennai, India - 600 036

e-mail: pradeep@iitm.ac.in, fax: +91-44-2257 0509/0545

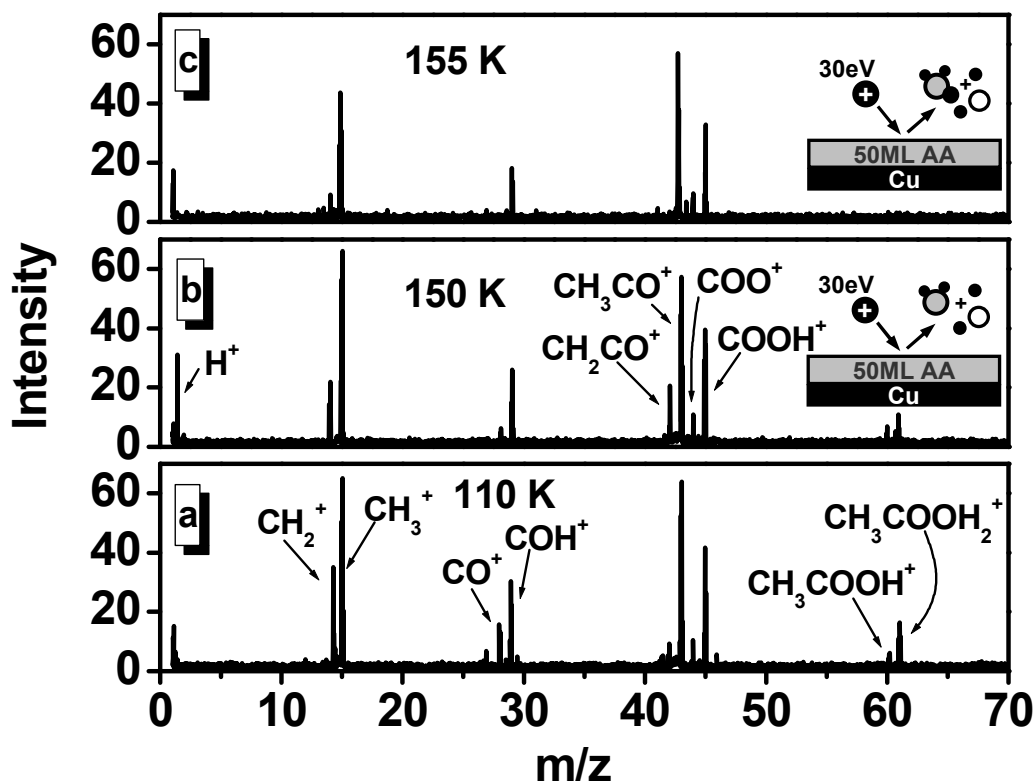


Figure S1: Chemical sputtering spectra of 50ML AA at various temperatures: (a) 110 K, (b) 150 K and (c) 155 K. The molecular ion peaks at m/z 60 and 61 disappeared after the crystallization of AA at ~153 K. The collision energy of Ar⁺ was 30 eV.

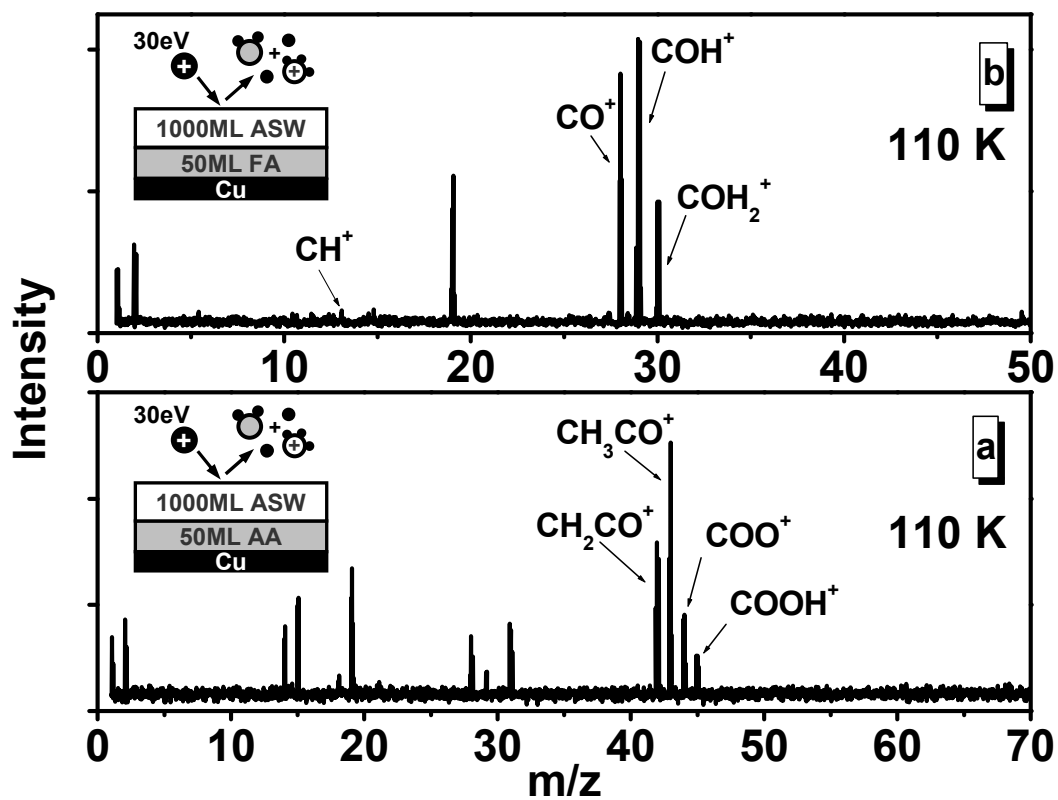


Figure S2: Intermixing of AA/FA - ice continues even after 1000ML coverage of ASW. Panel (a) corresponds to 50ML AA@1000ML ASW and (b) is due to 50ML FA@1000ML ASW. Important peaks are labeled which show the presence of FA or AA on the surface. The temperature was 110 K.

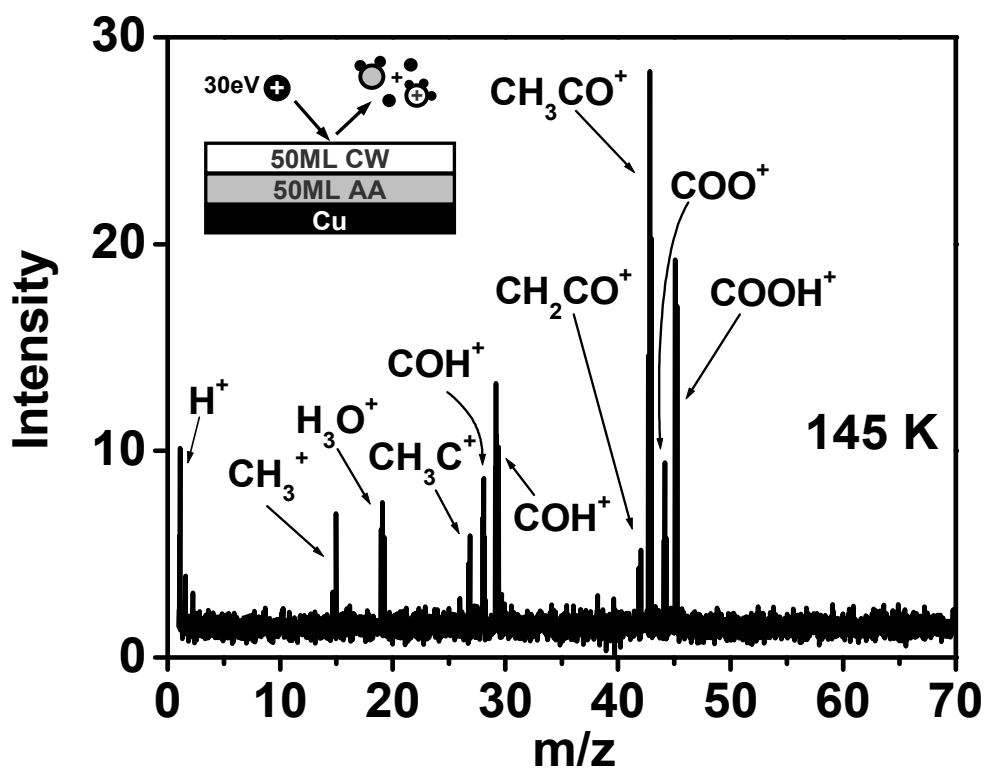


Figure S3. Chemical sputtering spectrum from 50ML AA@50ML CW. The temperature was 145 K and the collision energy of the Ar^+ ion was 30 eV. The system was prepared by heating AA to 150 K and then water vapor was deposited at 145 K.

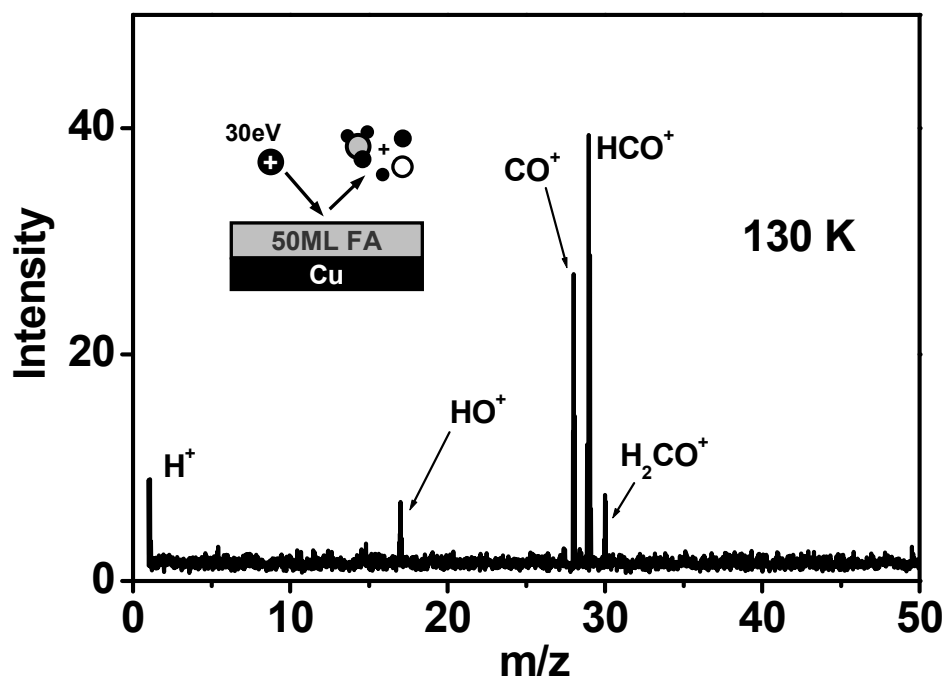


Figure S4. Chemical sputtering spectrum of 50ML FA at 130 K. The spectrum taken at 110 K is given in Figure 5a of the manuscript. The molecular ion peaks at m/z 60 and 61 disappeared after crystallization.

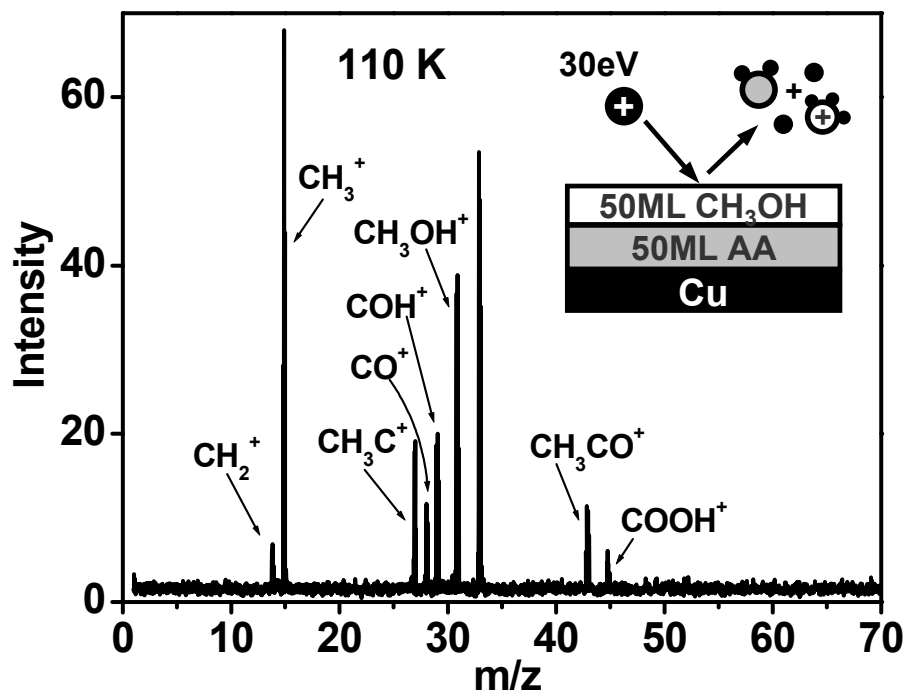


Figure S5. Chemical sputtering spectra from 50ML AA@50ML CH₃OH at 110 K. The absence of the molecular ion peaks of AA at m/z 60 and m/z 61 shows the structural transformation.

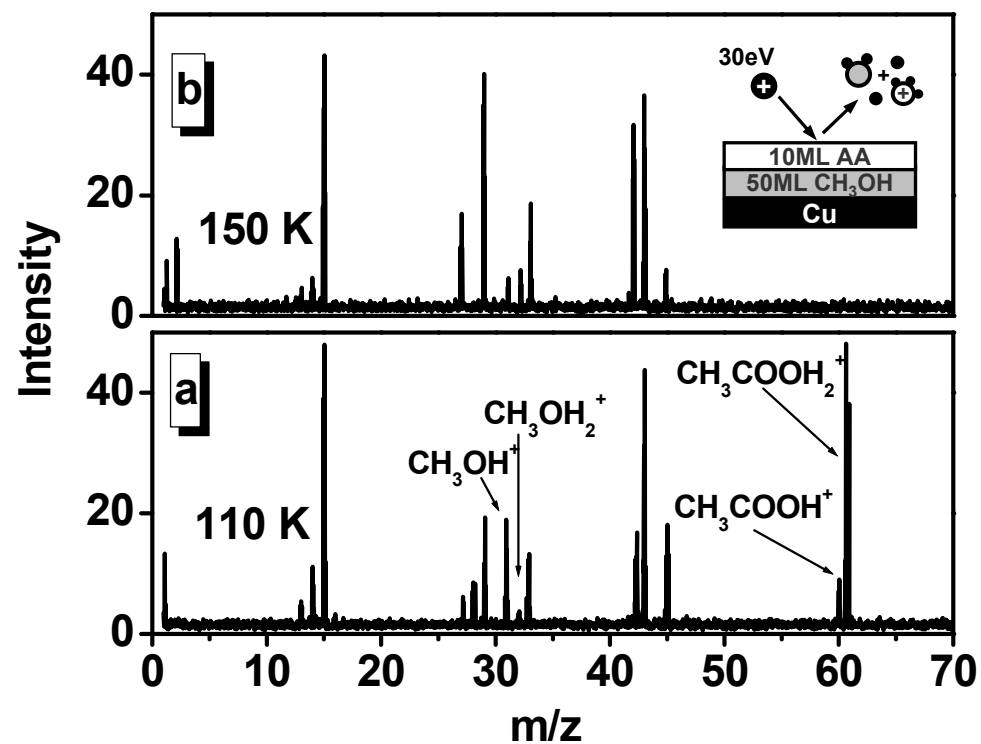


Figure S6. Chemical sputtering spectra from 50ML CH_3OH @10ML AA at (a) 110 K and (b) at 150 K. At lower temperature, AA exists in the dimeric form and at 150 K it converts to the crystalline form.