



Supplement of

Thin organic films unexpectedly enhance alcohol uptake on soot analogs: critical implications for aerosol aging

Xiangrui Kong et al.

Correspondence to: Shuai Jiang (shuaijiang@nankai.edu.cn) and Jan B. C. Pettersson (janp@chem.gu.se)

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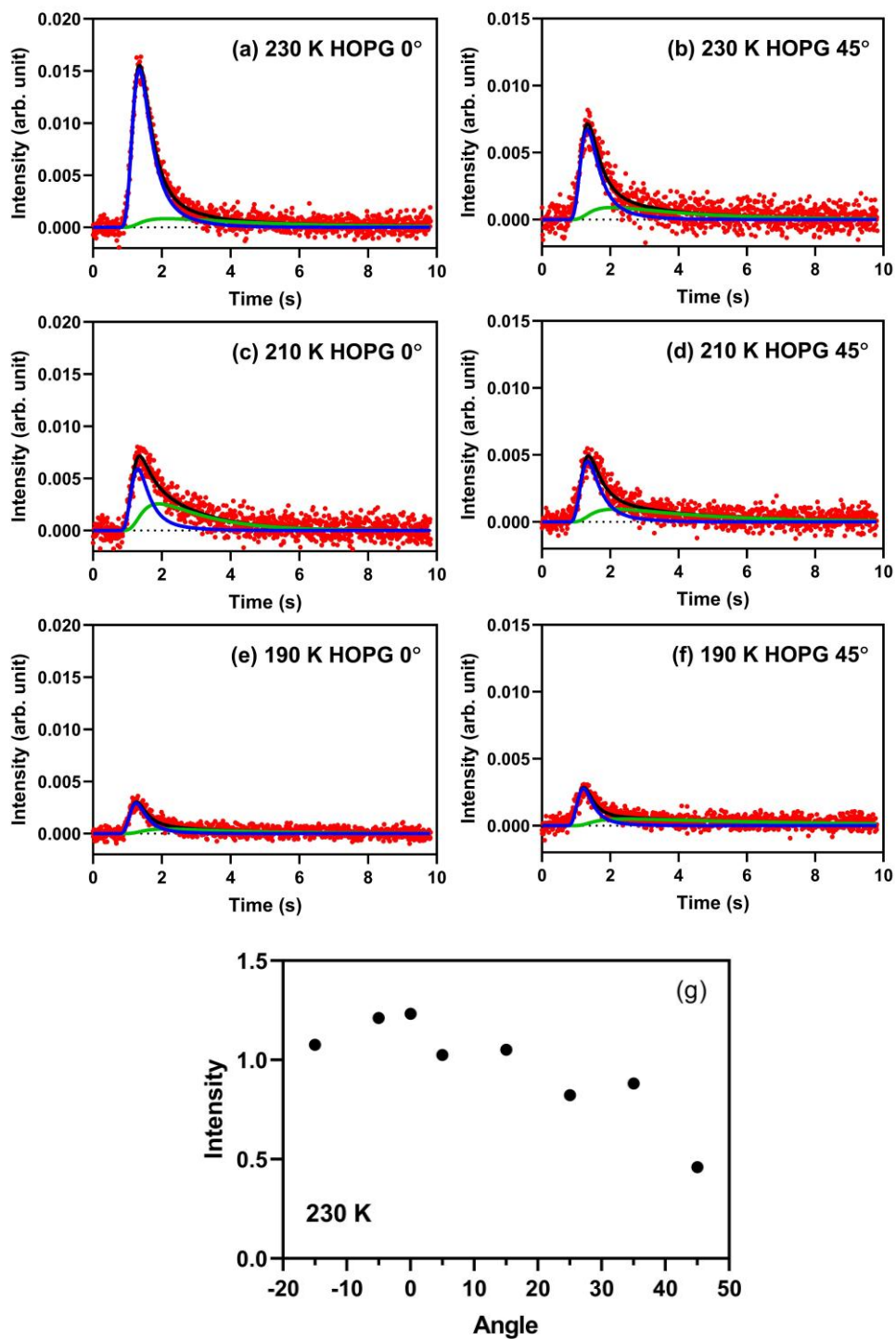


Figure S1 (a-f) TOF spectra of butanol desorption flux from HOPG following cluster beam impaction at different surface temperatures and detection angles. (g) Angular distribution of butanol molecule flux from HOPG at 230K after butanol cluster beam impaction.

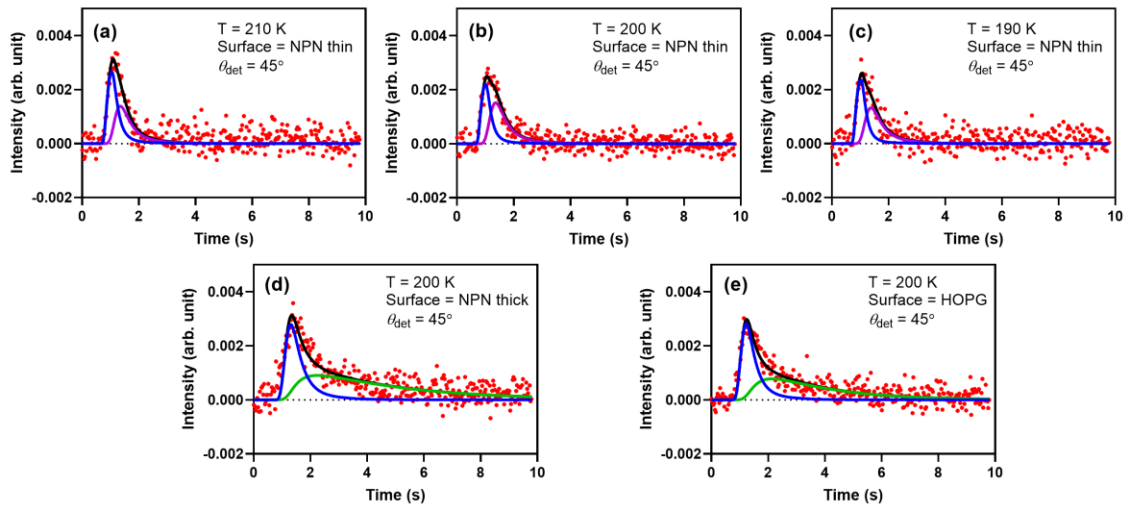


Figure S2 TOF spectra recorded at various surface temperatures and conditions. (a-c) Spectra for a thin NPN surface at 210 K, 200 K, and 190 K, respectively. (d) Results for a thicker NPN surface at 200 K. (e) Results for the HOPG surface at 200 K.

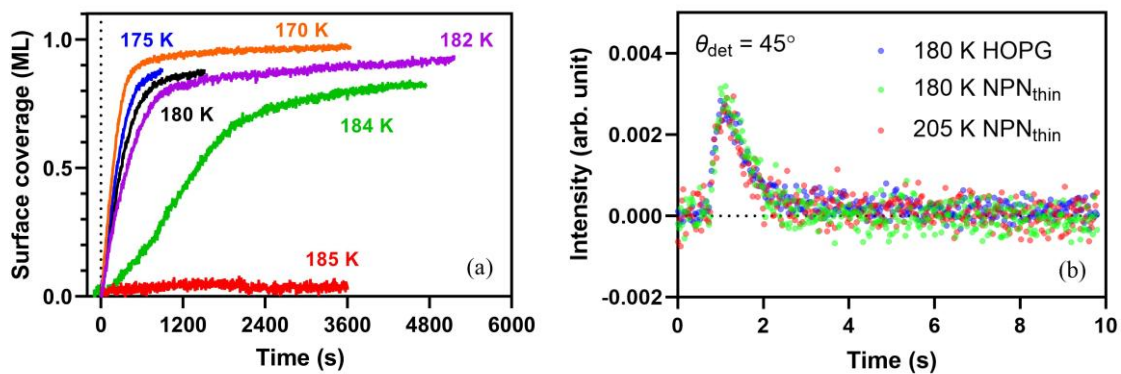


Figure S3 (a) Time evolution of butanol coverage on a graphite surface during exposure to the butanol cluster beam at various temperatures. Surface coverage was monitored via the elastic scattering of helium atoms within the molecular beam. (b) TOF spectra of desorbing butanol from graphite at 180 K, nopinone thin layer at 180 K, and nopinone thin layer at 205 K, measured at a detection angle of 45° .

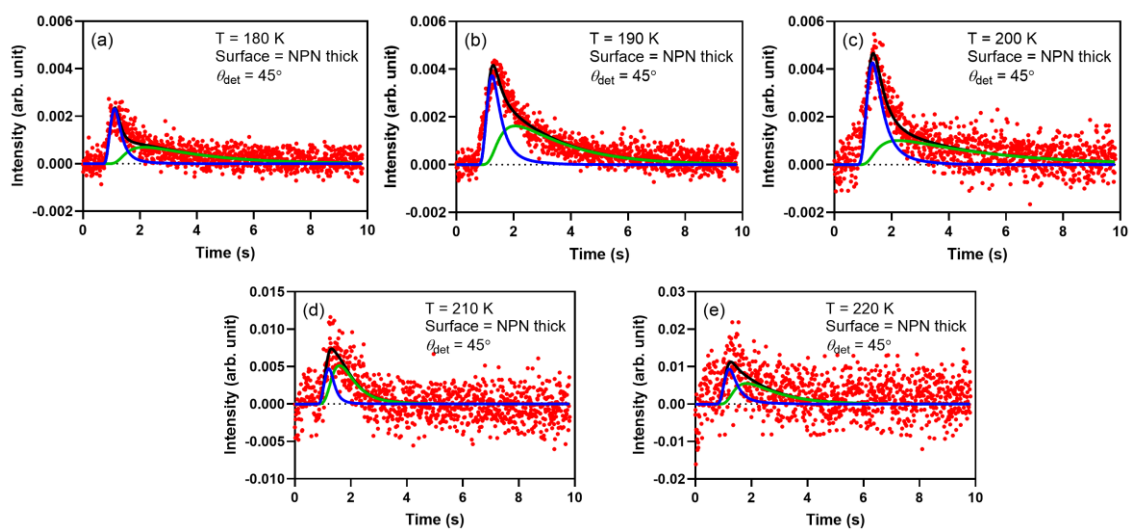


Figure S4 TOF spectra recorded at different surface temperatures for the thick NPN surface at a detection angle of 45° . (a-e) correspond to temperatures of 180 K, 190 K, 200 K, 210 K, and 220 K, respectively.

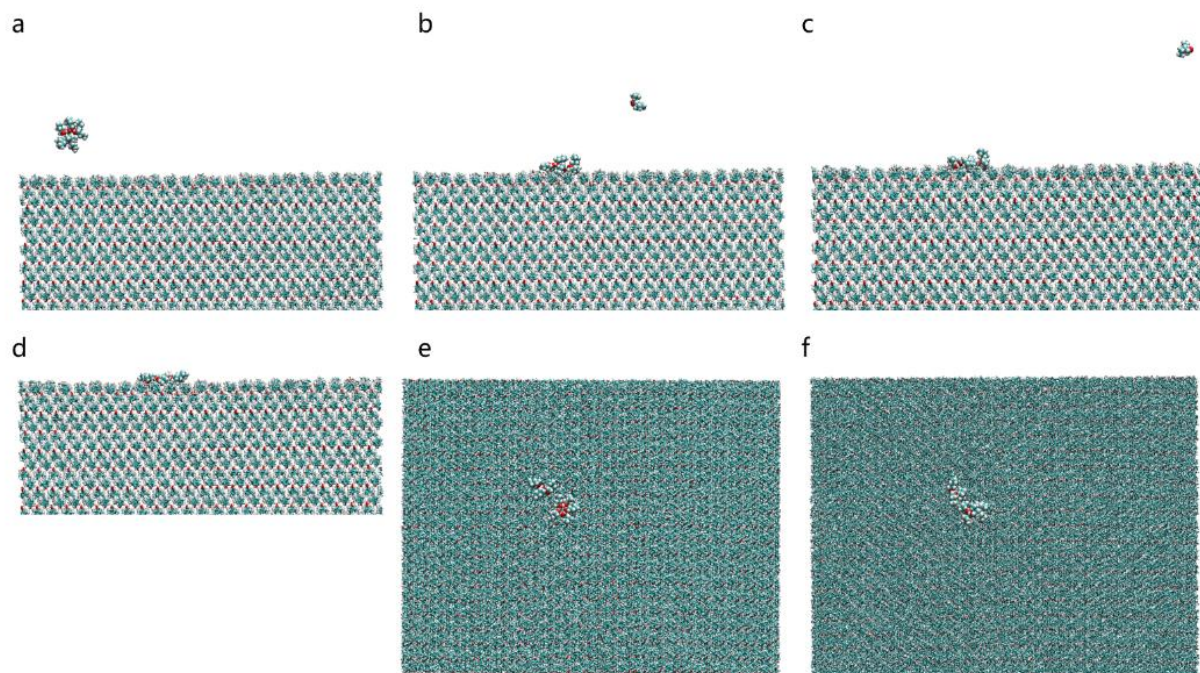


Figure S5 Snapshots of a 10-molecule butanol cluster reflectively colliding with the 15 layers nopinone surface at 200 K. Snapshot taken at (a) $t = 0$ ps; (b) $t = 15$ ps; (c) $t = 30$ ps; (d) $t = 100$ ps; (e) top view at 100ps; (f) top view at 1 ns.

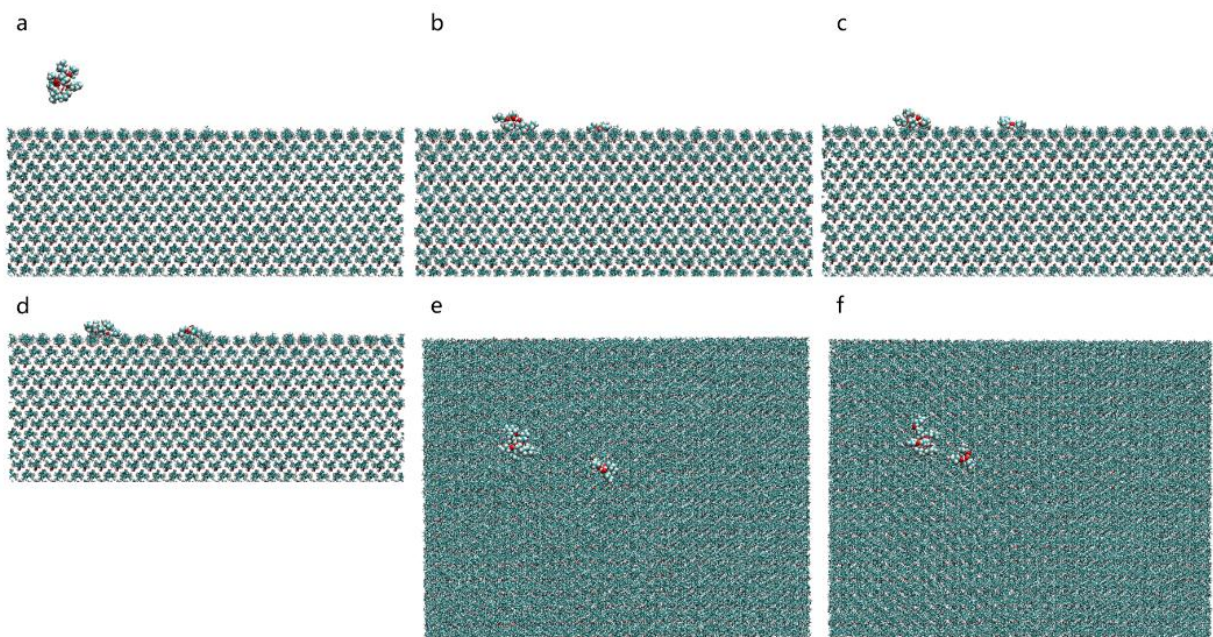


Figure S6 Snapshots of a 10-molecule butanol cluster non-reflectively colliding with the 15 layers nopinone surface at 200 K. Snapshot taken at (a) $t = 0$ ps; (b) $t = 15$ ps; (c) $t = 30$ ps; (d) $t = 100$ ps; (e) top view at 100 ps; (f) top view at 1 ns.