Supporting information

Tuning Surface Reactivity Pathways through Molecular Inhibitor Redosing for Precision Nanopatterning

Byungchan Lee[1†], Chi Thang Nguyen[1†], Minhyeok Lee[1], Ngoc Le Trinh[1] ,Kyeongmin Min[1], Youngho Kang[1], Eun-Hyoung Cho[2] and Han-Bo-Ram Lee[1*]

[1]Department of Materials Science and Engineering, Incheon National University, Incheon 22012, Korea

[2]Advanced Device Platform, Samsung Advanced Institute of Technology, Gyeonggi 16678, Korea

†These authors contributed equally. *Corresponding author. E-mail: hbrlee@inu.ac.kr

*** Corresponding Authors**: hbrlee@inu.ac.kr

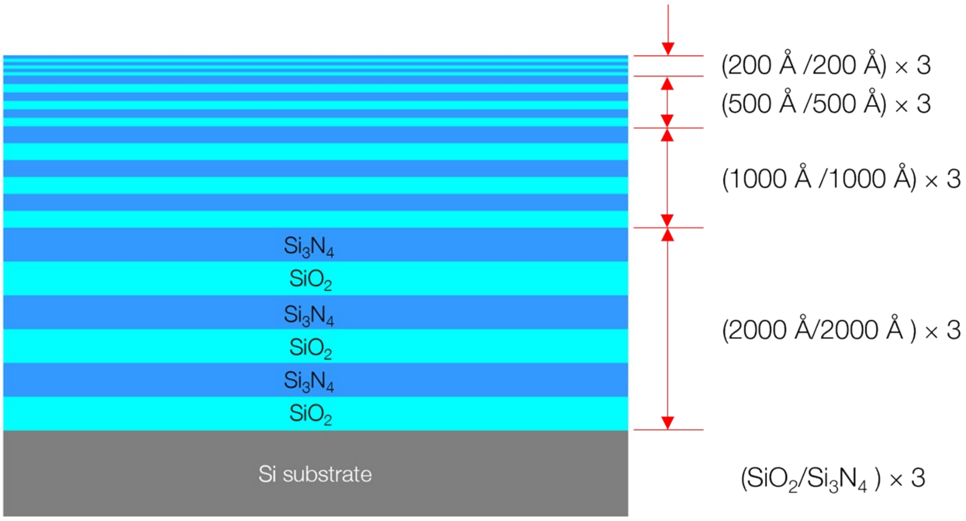

Figure S1. Schematic of ONO line patterned wafer

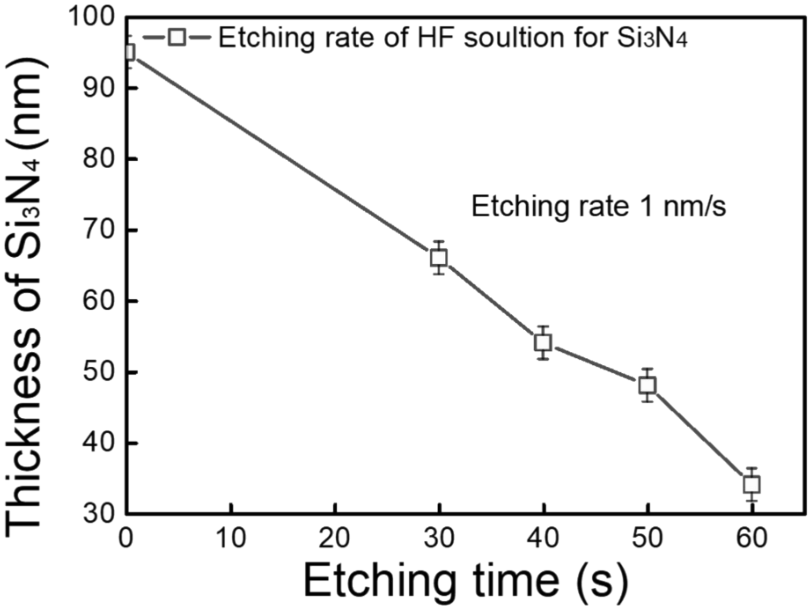

Figure S2. Etching rate of Si_3N_4 substrate using HF solution

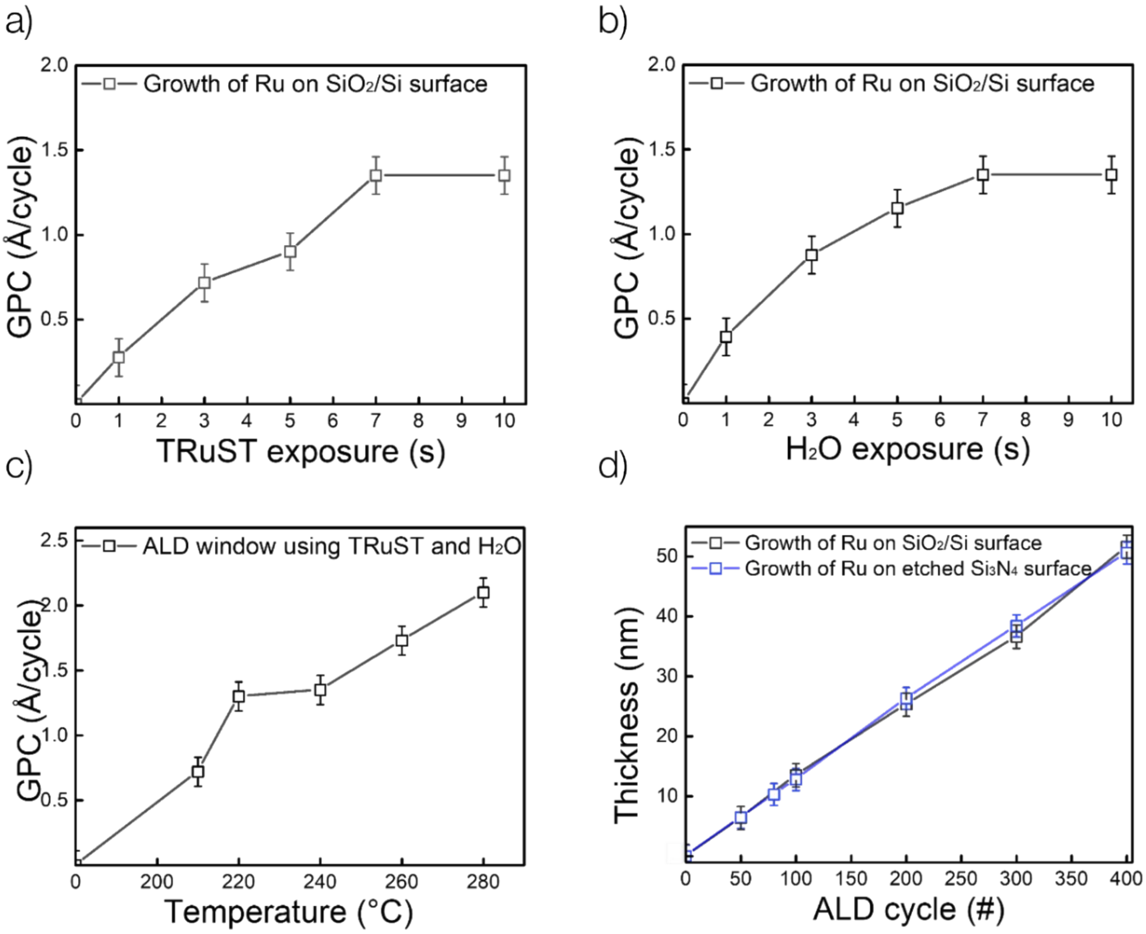

Figure S3. Growth characteristics of Ru ALD using TRuST and H_2O a) GPC along TRuST exposure time b) GPC along H_2O exposure time c) ALD window d) thickness change along number of cycles on SiO_2/Si and etched Si_3N_4

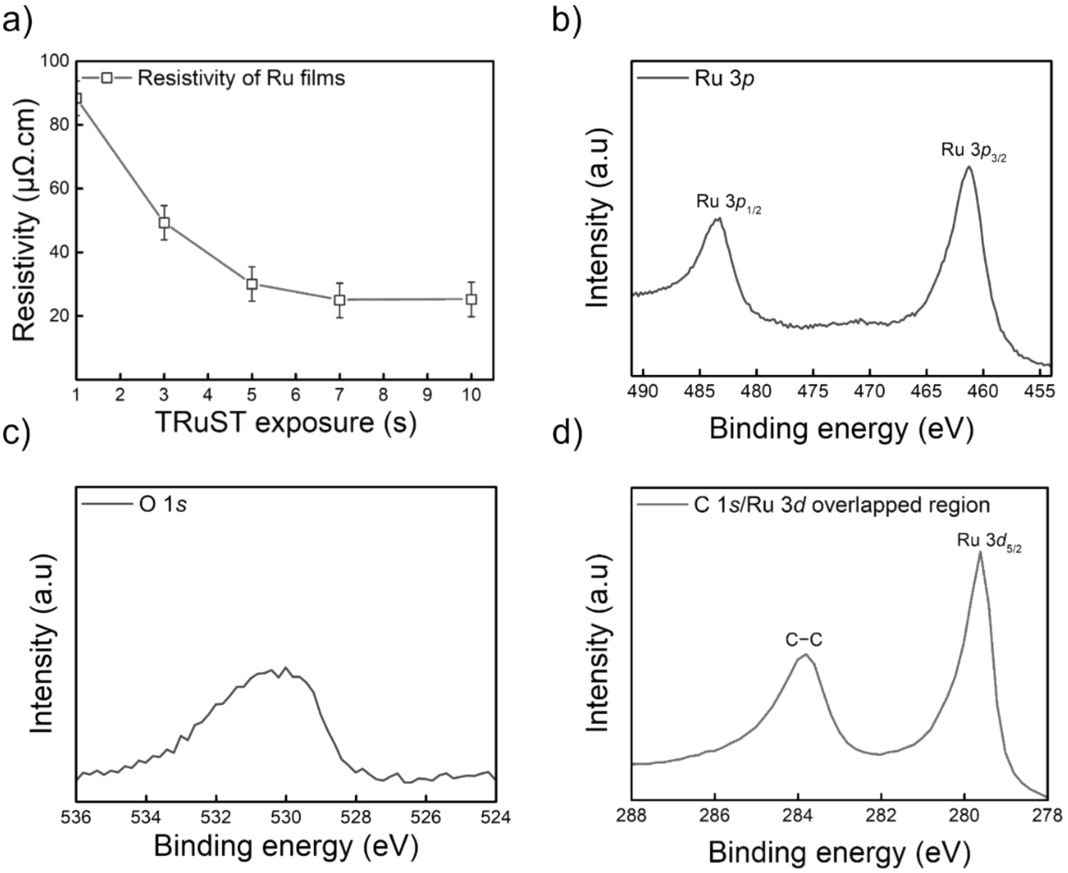

Figure S4. a) resistivity of Ru films along TRuST exposure time XPS spectra for Ru ALD a) Ru 3p b) O 1s c) Si 2p d) C 1s/Ru 3d

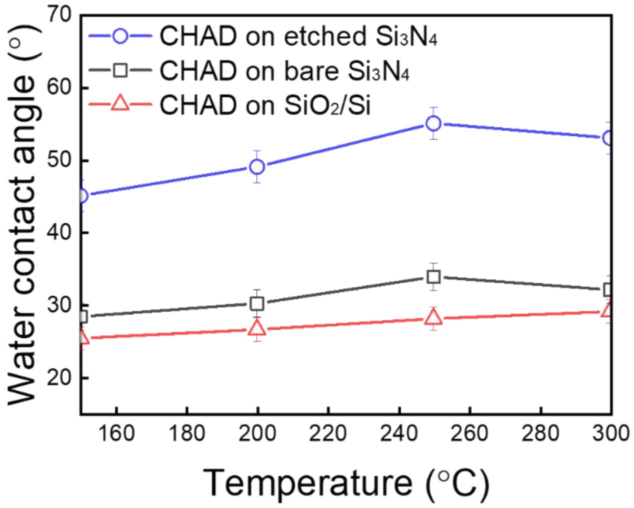

Figure S5. WCA changes along CHAD exposure temperature on various substrate

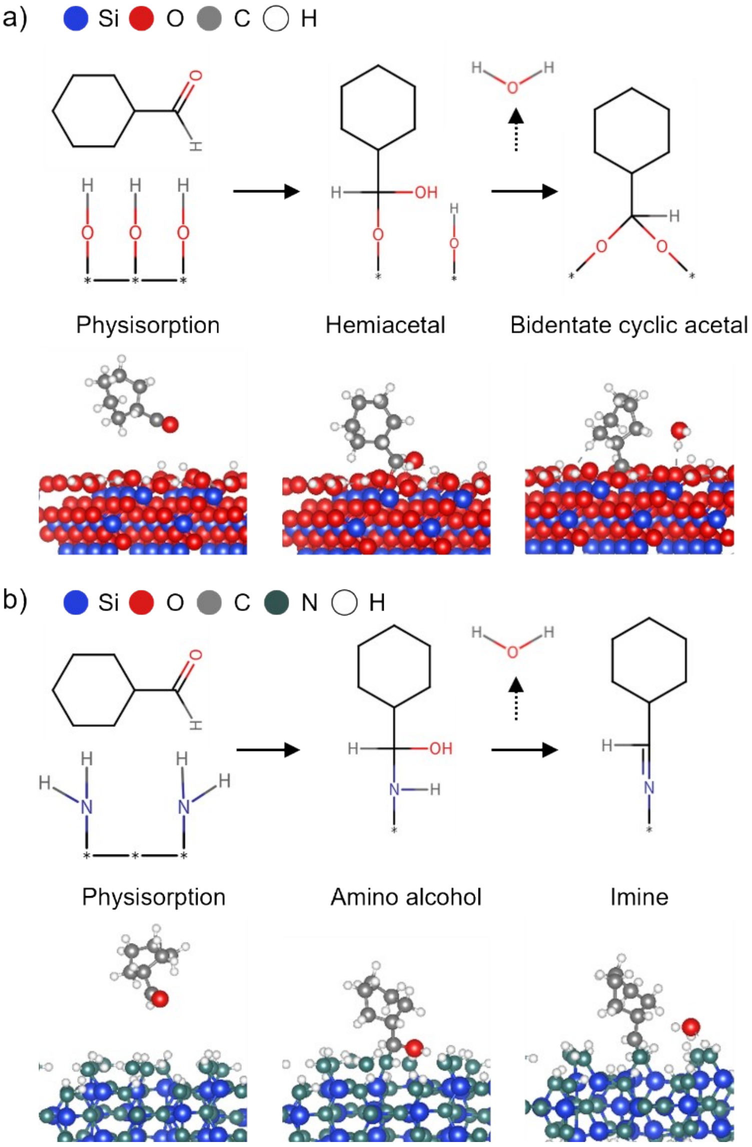

Figure S6. Adsorption configuration and DFT-calculated structures of CHAD a) on -OH terminated SiO_2 surface b) NH_2 terminated Si_3N_4 surface

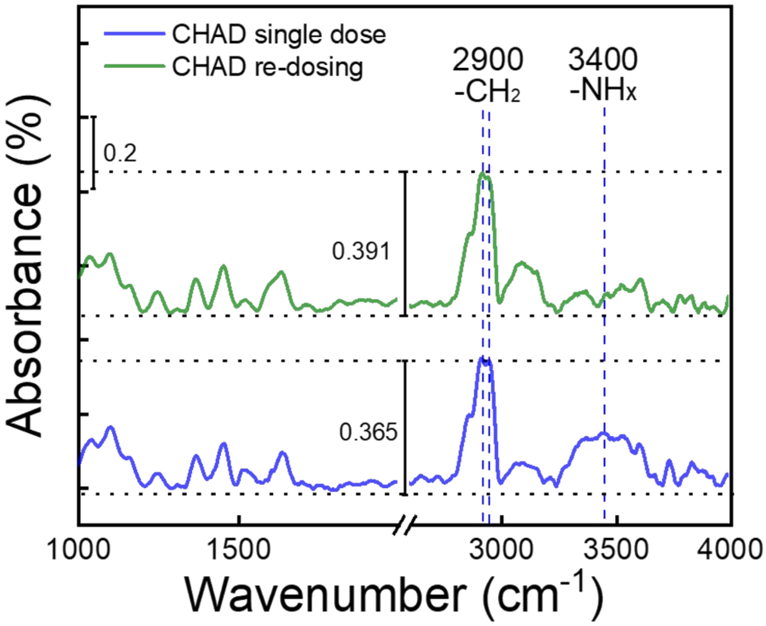

Figure S7 FT-IR analysis for CHAD single dose and re-dosing on SiO_2/Si and etched Si_3N_4

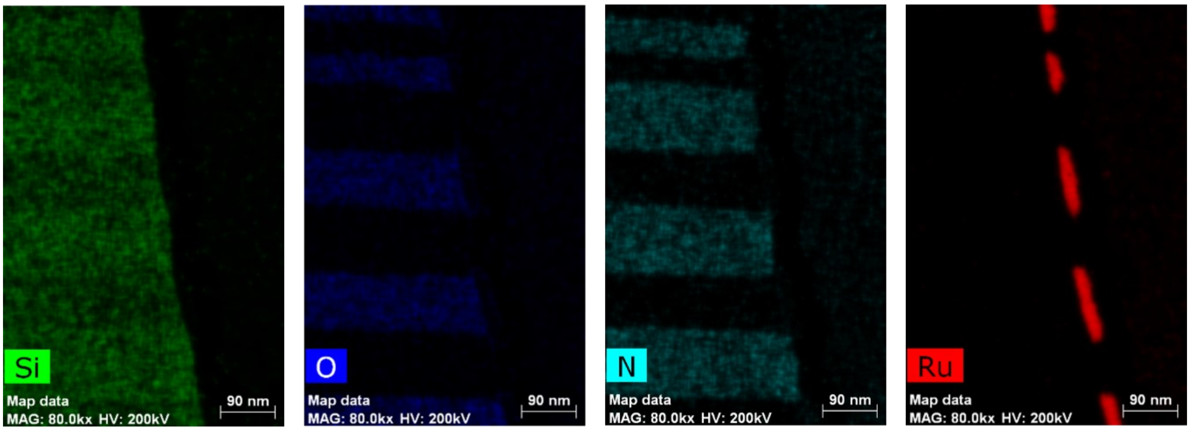

Figure S8. EDS mapping for Ru AS-ALD on 2D patterned wafer