

Figure 1: a) *in-situ* FTIR data showing the H_2 plasma modification of SiN as a function of exposure time. The formation of N-H and Si-H groups can be observed. Some Si-O formation can be observed as well and is result of oxidation due to residual H_2O present in the reactor. b) Schematic illustrating modification layer formation based on the data shown in c) and d): the formation on N-H groups saturates quickly with time whereas Si-H formation saturates more slowly. This indicates that initially a Si-NH_x rich layer is formed. As the H_2 Plasma treatment time increases the Si-NH_x is further reduced to Si-H and the transition region from Si-H > SiNH_x > SiN moves deeper in to the film. d) The modification layer can be removed by F-radical exposure. Initially the S-H rich layer is removed followed by part of the Si-NH_x transition region.

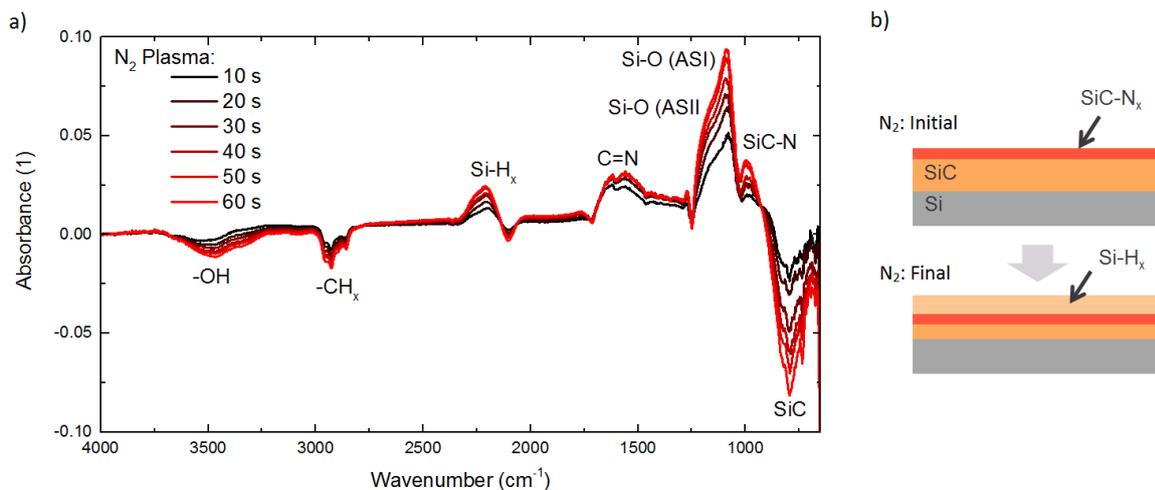


Figure 2: a) *in-situ* FTIR data showing the N_2 plasma modification of SiC as a function of plasma exposure time. The restructuring of the SiC and $-CH_x$ to from Si-H_x as well as C=N can be observed. At the same time the C-content of the layer is reduced creating a Si-H_x and C=N rich modification layer. b) Schematic illustrating plasma modification.