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Evidence of production/losses of NO on a pyrex surface under and after plasma exposure. DANIIL MARINOV, OLIVIER GUAITELLA, LPP, Ecole Polytechnique, YURY IONIKH, State University, Saint-Petersburg, ANTOINE ROUSSEAU, LPP, Ecole Polytechnique, France — Molecules production on plasma exposed surfaces is of great interest for plasma/catalyst coupling used in air treatment. Interaction of real surfaces with reactive plasmas is barely studied and surface-produced molecules can provide a valuable fingerprint of the underlying processes (adsorption, desorption, recombination, chemical reactions). We use CCP discharge in 60 cm pyrex tube with *in-situ* tunable laser diagnostics to monitor evolution of NO and NO_2. The tube surface is pre-treated using either Ar, O_2, N_2 or air plasma and then two types of experiments are performed i) molecules production in a pure O_2 plasma reacting with adsorbed species ii) the study of molecules losses/conversion on the surface by introducing a controlled amount of NO/NO_2 in the reactor. It was found that after N_2 plasma pre-treatment, pyrex surface is covered with nitrogen species that initiate NO production when exposed to O_2 plasma. Assuming these species are N atoms, their density was estimated $[N_{ads}]=3\cdot10^{13}$ cm^{-2}, what gives an assessment of the surface active sites density. Similarly, O_2 plasma leaves adsorbed oxygen species with $[O_{ads}] \approx 2\cdot10^{14}$ cm^{-2}These species are capable of NO oxidation to NO_2 and inhibit NO_2 adsorption on pyrex (which is pronounced after N_2 and Ar plasma preparation).

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