Electronic Supplementary Material (ESI) for RSC Advances

Electronic Supplementary Information (ESI)

On the enhancement of pervaporation properties of plasma-deposited hybrid silica membranes

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Brief description of the ETP-CVD rector

In the ETP-CVD system, the film deposition is not accompanied by any physical effect, i.e. ion bombardment during film growth, due to the very low electron temperature (0.2-0.3 eV) in the downstream region, which limits the developed self-bias voltage, i.e. 2–3 V. The dissociation of the organosilicon precursor takes place by its interaction with ions and electrons via charge exchange and dissociative recombination reactions. Both reactions lead to radicals responsible for the film growth.

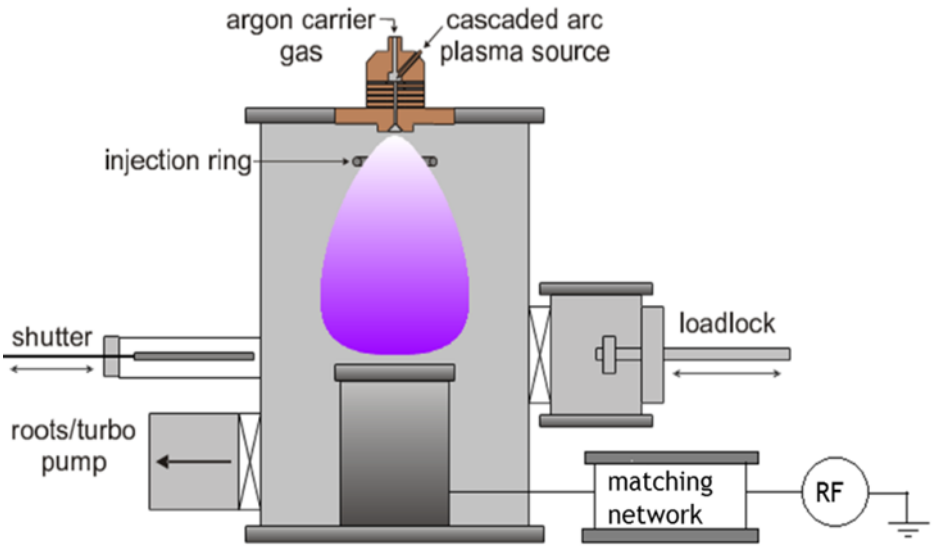

Fig. ESI-1: schematic of the ETP-CVD reactor coupled with an external radiofrequency bias.

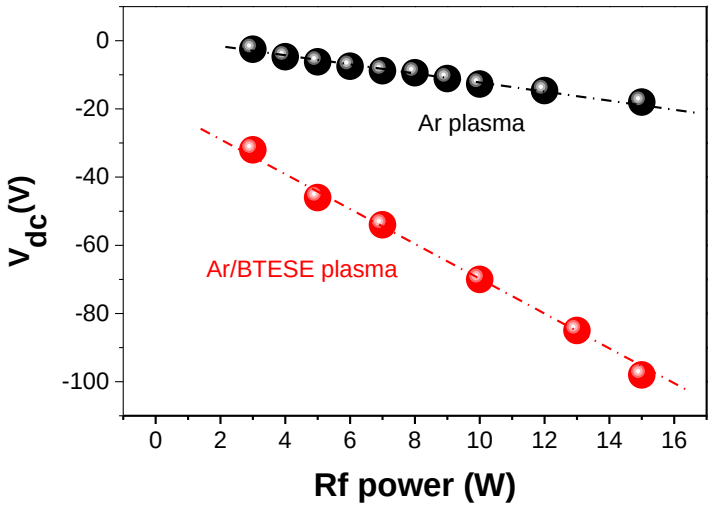

Fig.ESI-2: DC bias voltage as function of the applied rf-power for organosilica films deposited using pure argon plasma and a BTESE/Ar plasma

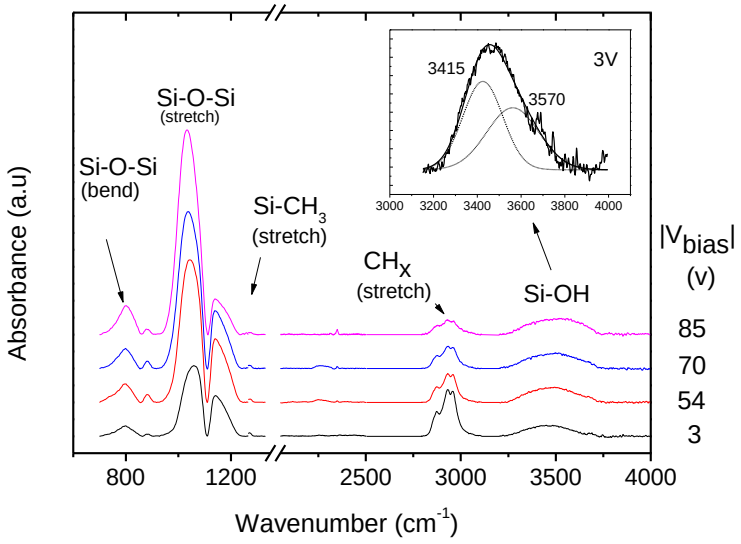

Fig. ESI-3. FTIR spectra of plasma deposited hybrid silica films for different values of lV_{dc}l. The insert corresponds to the deconvolution of the Si-OH band.

References (ESI)

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