

## II. 2 “Anhydrous HF Processes in Silicon Device Manufacturing”

*The process in which an anhydrous HF (AHF) is mixed with the vapor of an organic solvent (typically methanol, MeOH) for the purpose of etching of a native oxide SiO<sub>2</sub> on the Si surface is well established. The current strong push in advanced Si digital IC technology toward extremely fragile 3D geometries engraved on the Si wafer surface, as well as needs with regard to native oxide etching in emerging Si-based technologies, such as for instance solar cells or nanowire channel MOSFETS, has brought about renewed interest in AHF/MeOH technology. Furthermore, the same process was successfully expanded recently into advanced MEMS processing for the purpose of stiction-free releasing of the moving parts by isotropic, selective etching of sacrificial SiO<sub>2</sub>.*

*This presentation reviews emerging key applications of AFM/MeOH process and gives specific examples of its implementation based on original experimental results. Specifically, fundamentals of etch processes involving anhydrous HF are considered and results of etch runs performed on various SiO<sub>x</sub>-based oxide are presented. Then newly developed tools are introduced and their expansion toward the studies of etch selectivity, etch rate and surface roughness developed during native oxide etching on s-c, m-c, and amorphous Si, as well as on SiC are discussed.*

*\* Seminaria wygłaszane będą w języku polskim z wykorzystaniem ilustracji w języku angielskim.*



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