Modified Principal Component Analysis for In-situ Endpoint Detection of Dielectric Layers Eteching Using Plasma Impedance Monitoring and Self Plasma Optical Emission Spectroscopy

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Plasma etching is widely used in semiconductor processing. For in-situ detecting endpoint, optical-emission spectroscopy is used for in-situ endpoint detection for plasma etching. However, the sensitivity of OES is decreased if polymer is deposited on viewport or the proportion of exposed area on the wafer is too small. To overcome these problems, the object in this research is to investigate the suitability of using plasma impedance monitoring and self plasma optical emission spectroscopy with modified principal component analysis for in-situ endpoint detection of SiO_2 and SiNx layer etching.