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Real time monitoring of dielectric-film thickness on the surface of chamber wall for plasma processing JIN-YONG KIM, CHIN-WOOK CHUNG, Department of Electrical Engineering, Hanyang University — In this study, a dielectric film thickness monitoring system was developed. To measure the thickness of dielectric film on the probe, small sinusoidal voltage signals which have different frequencies are applied to an electrically floated planar type probe, then our system measure current signals and shifted V-I phase. A sheath circuit model is considered in order to measure the dielectric thickness in varying plasma status. In our experiments, accurate dielectric thickness was obtained regardless of RF power, gas pressure and argon-oxygen mixture ratio. This study may helpful to optimize periodic maintenance and increase productivity in semiconductor manufacturing process, such as chemical vapor deposition (CVD) and etching.

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