

Abstract Submitted
for the GEC17 Meeting of
The American Physical Society

Atomic Layer Processing of Silicon Dielectrics: Precursors, Processes, and Plasmas DAVID C. SMITH, Lam Research Corporation — Atomic layer deposition (ALD) and atomic layer etching (ALE) are advanced methods for achieving the formation of nanometer-sized features. Plasma-assisted ALD is the best-known method to meet low temperature (<500 °C) requirements and is now being used for depositing conformal silicon dielectrics such as silicon oxide (SiO_2) and silicon nitride (Si_3N_4). Atomic layer etching (ALE) is an advanced etch technique used in the fabrication of 10 nm logic devices. By virtue of its separated and self-limiting steps, ALE offers a simplified system in which to understand etch mechanisms. The current state of the art of chemistries, plasmas, and process conditions required for the processing of silicon dielectrics by plasma ALD and ALE will be discussed.

David C. Smith
Lam Research Corporation

Date submitted: 26 Jun 2017

Electronic form version 1.4