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Simulations of pulsed rf plasma sources using CFD-ACE+ MUSTAFA MEGAHED, ANANTH BHOJ, ESI Group, SING KI NAM, RAJ DHINDSA, Lam Research Corporation, ESI GROUP TEAM, LAM RESEARCH CORPORATION TEAM — Pulsing techniques are increasingly being used in plasma processing reactors for newer technological nodes. Pulsed rf sources allow for additional "knobs" to control plasma parameters. In particular, varying the pulsing frequency, duty cycle and pulse shape enables manipulation of the fluxes and energy distribution functions. Accurate numerical simulations of pulsed discharges require that transients are tracked. Time scales for the rf signals, pulsing frequency and the neutral / heavy species response times can span orders of magnitude posing a significant challenge. The multi-physics modeling platform CFD-ACE+ was used in this work to address simulations of an Ar discharge in a typical CCP reactor configuration. The effect of pulsing on plasma characteristics was investigated. Initial results comparing the continuous and pulsed rf operating modes will be discussed.

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