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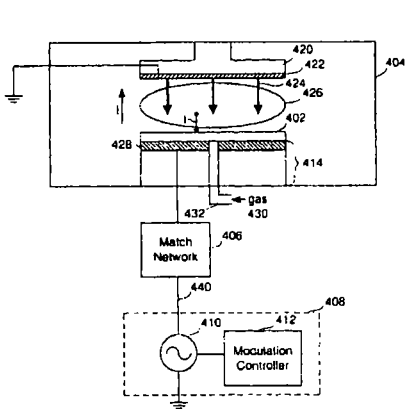
(54) Title: SYSTEM, APPARATUS, AND METHOD FOR PROCESSING WAFER USING SINGLE FREQUENCY RF POWER IN PLASMA PROCESSING CHAMBER



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ACTION

(57) Abstract: The present invention provides a system, apparatus, and method for processing a wafer using a single frequency RF power in a plasma processing chamber. The plasma processing system includes a modulated RF power generator, a plasma processing chamber, and a match network. The modulated RF power generator is arranged to generate a modulated RF power. The plasma processing chamber is arranged to receive the modulated RF power for processing the wafer and is characterized by an internal impedance during the plasma processing. The plasma processing chamber includes an electrostatic chuck for holding the wafer in place with the electrostatic chuck including a first electrode disposed under the wafer for receiving the modulated RF power. The plasma processing chamber further includes a second electrode disposed over the wafer. The modulated RF power generates plasma and ion bombardment energy for processing the wafer. The match network is coupled between the modulated RF power generator and the plasma processing chamber to receive and transmit the modulated RF power from the modulated RF power generator to the plasma processing chamber. The match network is further configured to match an impedance of the modulated RF power generator to the internal impedance of the plasma processing chamber.

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