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- (71) **Applicant:** LAM RESEARCH CORPORATION
[US/US]; 4650 Cushing Parkway, Fremont, California CA-94538 (US).
- (71) **Applicant (for BZ only):** LAM RESEARCH AG
[AT/AT]; SEZ-Strasse 1, A-9500 Villach (AT).
- (72) **Inventor:** JACOBS KANARIK, Keren; 24481 Summerhill Ave, Los Altos, California 94024 (US).
- (74) **Agent:** KONTRUS, Gerhard; SEZ-Strasse 1, A-9500 Villach (AT).
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(54) **Title:** MIXED MODE PULSING ETCHING IN PLASMA PROCESSING SYSTEMS

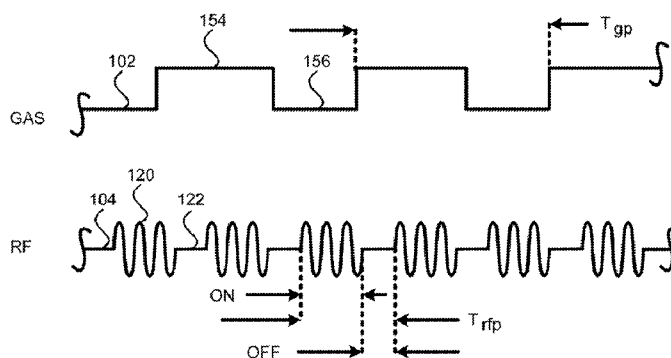


FIG. 1

(57) **Abstract:** A method for processing substrate in a chamber, which has at least one plasma generating source, a reactive gas source for providing reactive gas into the interior region of the chamber, and a non-reactive gas source for providing non-reactive gas into the interior region, is provided. The method includes performing a mixed-mode pulsing (MMP) preparation phase, including flowing reactive gas into the interior region and forming a first plasma to process the substrate that is disposed on a work piece holder. The method further includes performing a MMP reactive phase, including flowing at least non-reactive gas into the interior region, and forming a second plasma to process the substrate, the second plasma is formed with a reactive gas flow during the MMP reactive phase that is less than a reactive gas flow during the MMP preparation phase. Perform the method, steps a plurality of times.