EXHIBIT D.07
U.S. Patent No. 6,853,142

References cited herein:

- U.S. Pat. No. 6,853,142 ("'142 Patent")
- U.S. Pat. No. 6,413,382 ("Wang")
- U.S. Pat. No. 6,190,512 ("Lantsman")

'142 Claims 1, 3-7, 9, 10, 12, 14, 15, 19, 20, 40, and 42	Wang in view of Lantsman
[1pre.] An apparatus for generating a strongly-ionized plasma in a chamber, the apparatus comprising:	The combination of Wang and Lantsman discloses an apparatus for generating a strongly-ionized plasma in a chamber. Wang at 7:19-25 ("Preferably, the peak power P_P is at least 10 times the background power P_B, more preferably at least 100 times, and most preferably 1000 times to achieve the greatest effect of the invention. A background power P_B of 1kW will typically be sufficient to support a plasma with the torpedo magnetron and a 200 mm wafer although with little if any actual sputter deposition.") Wang at 7:31-39 ("In one mode of operating the reactor, during the background period, little or no target sputtering is expected. The SIP reactor is advantageous for a low-power, low-pressure background period since the small rotating SIP magnetron can maintain a plasma at lower power and lower pressure than can a larger stationary magnetron. However, it is possible to combine highly ionized sputtering during the pulses with significant neutral sputtering during the background period.") Wang at 7:28-30 (" the application of the high peak power P_P instead quickly causes the already existing plasma to spread and increases the density of the plasma")
[1a.] an ionization source that generates a weakly-ionized plasma from a feed gas, the weakly-ionized plasma reducing the probability of developing an electrical breakdown condition in the chamber;	The combination of Wang and Lantsman discloses an ionization source that generates a weakly-ionized plasma from a feed gas, the weakly-ionized plasma reducing the probability of developing an electrical breakdown condition in the chamber. Wang at Fig. 7 Wang at 4:5-6 ("A sputter working gas such as argon is supplied from a gas source 32….")

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'142 Claims 1, 3-7, 9, 10, 12, 14, 15, 19, 20, 40, and 42	Wang in view of Lantsman
	Wang at 4:20-21 ("… a reactive gas, for example nitrogen is supplied to the processing space 22….") Wang at 7:17-31 ("The background power level P_B is chosen to exceed the minimum power necessary to support a plasma... [T]he application of the high peak power P_P quickly causes the already existing plasma to spread and increases the density of the plasma.") Wang at 7:19-25 ("Preferably, the peak power P_P is at least 10 times the background power P_B … and most preferably 1000 times to achieve the greatest effect of the invention. A background power P_B of 1 kW [causes] little if any actual sputter deposition." Wang at 4:23-31 (Ex. 1005) ("…thus creating a region 42 of a high-density plasma (HDP)…") Wang at 7:3-49 ("Plasma ignition, particularly in plasma sputter reactors, has a tendency to generate particles during the initial arcing, which may dislodge large particles from the target or chamber… The initial plasma ignition needs be performed only once and at much lower power levels so that particulates produced by arcing are much reduced.") Wang at 7:25-28 ("As a result, once the plasma has been ignited at the beginning of sputtering prior to the illustrated waveform, no more plasma ignition occurs."). Wang at 7:58-61 ("… DC power supply 100 is connected to the target 14 … and supplies an essentially constant negative voltage to the target 14 corresponding to the background power P_B.") Wang at 7:22-23 ("A background power P_B of 1 kW will typically be sufficient to support a plasma…")
[1b.] a power supply that supplies power to the weakly-ionized plasma though an electrical pulse applied across the weakly-ionized plasma, the electrical pulse having a	The combination of Wang and Lantsman discloses a power supply that supplies power to the weakly-ionized plasma though an electrical pulse applied across the weakly-ionized plasma, the electrical pulse having a magnitude and a rise-time that is sufficient to increase the density of the weakly-

'142 Claims 1, 3-7, 9, 10, 12, 14, 15, 19, 20, 40, and 42	Wang in view of Lantsman
magnitude and a rise-time that is sufficient to increase the density of the weakly-ionized plasma to generate a strongly-ionized plasma; and	ionized plasma to generate a strongly-ionized plasma. Wang at Fig. 7 Wang at 7:61-62 ("The pulsed DC power supply 80 produces a train of negative voltage pulses.") Wang at 7:19-25 ("Preferably, the peak power level P_P is at least 10 times the background power level P_B, … most preferably 1000 times to achieve the greatest effects of the invention. A background power P_B of 1 kW will typically be sufficient…") Wang at 7:28-30 ("… the application of the high peak power P_P instead quickly causes the already existing plasma to spread and increases the density of the plasma."). Wang at 7:36-39 ("However, it is possible to combine highly ionized sputtering during the pulses with significant neutral sputtering during the background period.") Wang at 5:23-27 ("[The pulse's] exact shape depends on the design of the pulsed DC power supply 80, and significant rise times and fall times are expected.") *See* evidence cited in limitation [1pre] of claim 1.
[1c.] a gas line that supplies feed gas to the strongly-ionized plasma, the feed gas diffusing the strongly-ionized plasma, thereby allowing additional power from the pulsed power supply to be absorbed by the strongly-ionized plasma.	The combination of Wang and Lantsman discloses a gas line that supplies feed gas to the strongly-ionized plasma, the feed gas diffusing the strongly-ionized plasma, thereby allowing additional power from the pulsed power supply to be absorbed by the strongly-ionized plasma. Wang at Fig. 1 Wang at 4:5-6 ("A sputter working gas such as argon is supplied from a gas source 32 through a mass flow controller 34 to a region in back of the grounded shield 24.") Wang at 4:8-10 ("The gas flows into the processing region 22 through a gap formed between the pedestal 18, the grounded shield 24, and a clamp ring or plasma focus ring 36 surrounding the periphery of the wafer 20.")

'142 Claims 1, 3-7, 9, 10, 12, 14, 15, 19, 20, 40, and 42	**Wang in view of Lantsman**
	Wang at 4:51-55 ("A computerized controller 58 controls the … mass flow controller 34, as illustrated….") Lantsman at 2:48-51 ("This secondary power supply 'pre-ignites' the plasma so that when the primary power supply is applied, the system smoothly transitions to final plasma development and deposition.") One of ordinary skill would have been motivated to combine Wang and Lantsman. Lantsman is directed to sputtering using a plasma. So is Wang. *See* Wang at Title ("Pulsed sputtering with a small rotating magnetron"); 3:20-21 ("[A] high plasma density is achieved adjacent to the magnetron during the pulse."). Also, Lantsman uses two power supplies, one for pre-ionization and one for deposition. So does Wang. See Wang at Fig. 7 [*showing pulsed supply 80 and constant supply 100*] Lantsman generates a plasma without arcing. So does Wang. Wang at 7:3-49 ("Plasma ignition, particularly in plasma sputter reactors, has a tendency to generate particles during the initial arcing, …. The initial plasma ignition needs be performed only once and at much lower power levels so that particulates produced by arcing are much reduced.") Summarizing, Wang and Lantsman relate to the same application. Further, one of ordinary skill would have been motivated to use Lantsman's continuous gas flow in Wang so as to maintain a desired pressure in the chamber. Also, use of Lantsman's continuous gas flow in Wang would have worked well with Wang's mass flow controller 34 and would have been a combination of old elements in which each element behaved as expected. Finally, such a continuous flow of gas in Wang would diffuse the strongly-ionized plasma and allow additional power to be absorbed by the plasma as required by claim 1.
3. The apparatus of claim 1 wherein the gas line supplies additional feed gas that exchanges the weakly-ionized plasma while applying the electrical pulse across.	The combination of Wang and Lantsman discloses the gas line supplies additional feed gas that exchanges the weakly-ionized plasma while applying the electrical pulse across. *See* evidence cited in claim 1

'142 Claims 1, 3-7, 9, 10, 12, 14, 15, 19, 20, 40, and 42	**Wang in view of Lantsman**
4. The apparatus of claim 1 wherein the power supply generates a constant power.	The combination of Wang and Lantsman discloses the power supply generates a constant power. *See* evidence cited in claim 1 '142 Patent at Fig. 4 Wang at Figs. 1, 6 and 7 Lantsman at 1:22-24 ("A typical DC power supply 10 includes a relatively sophisticated control system, designed to permit operation in constant power, constant voltage, or constant current modes.")
5. The apparatus of claim 1 wherein the power supply generates a constant voltage.	The combination of Wang and Lantsman discloses the power supply generates a constant voltage. *See* evidence cited in claim 1 Wang at 7:61-62 ("pulsed DC power supply 80 produces a train of negative voltage pulses.") One of ordinary skill would have understood that Wang's voltage would be constant for at least a portion of the duration of the pulse τ_w so as to produce pulse P_P of constant power. Lantsman at 1:22-24 ("A typical DC power supply 10 includes a relatively sophisticated control system, designed to permit operation in constant power, constant voltage, or constant current modes.")
6. The apparatus of claim 1 wherein the ionization source is chosen from the group comprising an electrode coupled to a DC power supply, an electrode coupled to an AC power supply, a UV source, an X-ray source, an electron beam source, an ion beam source, an inductively coupled plasma	The combination of Wang and Lantsman discloses the ionization source is chosen from the group comprising an electrode coupled to a DC power supply, an electrode coupled to an AC power supply, a UV source, an X-ray source, an electron beam source, an ion beam source, an inductively coupled plasma source, a capacitively coupled plasma source, and a microwave plasma source. *See* evidence cited in claim 1 Wang at 7:58 ("… DC power supply 100 is connected to the

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