EXHIBIT C.07
U.S. Patent No. 7,811,421

References cited herein:

- U.S. Pat. No. 7,811,421 ("'421 Patent")
- D.V. Mozgrin, *et al*, High-Current Low-Pressure Quasi-Stationary Discharge in a Magnetic Field: Experimental Research, Plasma Physics Reports, Vol. 21, No. 5, 1995 ("Mozgrin")
- U.S. Pat. No. 6,190,512 ("Lantsman")
- A. A. Kudryavtsev, *et al*, Ionization relaxation in a plasma produced by a pulsed inert-gas discharge, Sov. Phys. Tech. Phys. 28(1), January 1983 ("Kudryavtsev")
- Dennis M. Manos & Daniel L. Flamm, Plasma Etching: An Introduction, Academic Press 1989 ("Manos")
- Milton Ohring, The Material Science of Thin Films, Academic Press, 1992 ("Ohring")

'421 Claims 21, 24, and 25	Mozgrin in view of Lantsman and Kudryavtsev
[17pre]. A sputtering source comprising:	The combination of Mozgrin and Lantsman discloses a sputtering source. Mozgrin 403, right col, ¶4 ("Regime 2 was characterized by intense cathode sputtering…")
[17a] a) a cathode assembly comprising a sputtering target that is positioned adjacent to an anode;	The combination of Mozgrin and Lantsman discloses a cathode assembly comprising a sputtering target that is positioned adjacent to an anode. '421 Patent at 3:39-4:2 ("FIG. 1 illustrates a cross-sectional view of a known magnetron sputtering apparatus 100 having a pulsed power source 102. … The magnetron sputtering apparatus 100 also includes a cathode assembly 114 having a target 116. … An anode 130 is positioned in the vacuum chamber 104 proximate to the cathode assembly 114.") Mozgrin at Fig. 1 Mozgrin at 403, right col., ¶4 ("Regime 2 was characterized by an intense cathode sputtering….") Mozgrin at 403, right col, ¶ 4 ("…The pulsed deposition rate of the cathode material…")
[17b] b) a power supply that generates	The combination of Mozgrin and Lantsman discloses

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'421 Claims 21, 24, and 25	Mozgrin in view of Lantsman and Kudryavtsev
a voltage pulse between the anode and the cathode assembly that creates a weakly-ionized plasma and then a strongly-ionized plasma from the weakly-ionized plasma without an occurrence of arcing between the anode and the cathode assembly, an amplitude and a rise time of the voltage pulse being chosen to increase a density of ions in the strongly-ionized plasma; and	a power supply that generates a voltage pulse between the anode and the cathode assembly that creates a weakly-ionized plasma and then a strongly-ionized plasma from the weakly-ionized plasma without an occurrence of arcing between the anode and the cathode assembly, an amplitude and a rise time of the voltage pulse being chosen to increase a density of ions in the strongly-ionized plasma. '421 Patent at Fig. 6 '421 Patent at 8:22-23 ("The weakly-ionized plasma is also referred to as a pre-ionized plasma.") Mozgrin at Figs. 2 and 3 Mozgrin at 401, left col, ¶ 4 ("It was possible to form the high-current quasi-stationary regime by applying a square voltage pulse to the discharge gap which was filled up with either neutral or pre-ionized gas.") Mozgrin at 402, right col, ¶2 ("Figure 3 shows typical voltage and current oscillograms.… Part I in the voltage oscillogram represents the voltage of the stationary discharge (pre-ionization stage).") Mozgrin at 401, right col, ¶2 ("[f]or pre-ionization, we used a stationary magnetron discharge; … provided the initial plasma density in the 10^9 – 10^{11} cm^{-3} range.") Mozgrin at 409, left col, ¶ 4 ("The implementation of the high-current magnetron discharge (regime 2) in sputtering … plasma density (exceeding $2x10^{13}$ cm^{-3}).)" Mozgrin at 400, left col, ¶ 3 ("Some experiments on magnetron systems of various geometry showed that discharge regimes which do not transit to arcs can be obtained even at high currents.") Mozgrin at Fig. 7 Mozgrin explicitly notes that arcs can be avoided. See Mozgrin at 400, left col, ¶ 3 ("Some experiments on magnetron systems of various geometry showed

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'421 Claims 21, 24, and 25	Mozgrin in view of Lantsman and Kudryavtsev
	that discharge regimes which do not transit to arcs can be obtained even at high currents.") Mozgrin at 400, right col, ¶ 1 ("A further increase in the discharge currents caused the discharges to transit to the arc regimes…") Mozgrin at 404, left col, ¶ 4 ("The parameters of the shaped-electrode discharge transit to regime 3, as well as the condition of its transit to arc regime 4, could be well determined for every given set of the discharge parameters.") Mozgrin at 406, right col, ¶ 3 ("Moreover, pre-ionization was not necessary; however, in this case, the probability of discharge transferring to the arc mode increased.") Mozgrin at 404, left col, ¶ 2 ("[t]he density turned out to be about 3 x 10^{12} cm^{-3} in the regime of I_d = 60A and U_d = 900 V.") Mozgrin at 403 left col, ¶ 4 ("[t]ransferring to regime 3, the discharge occupied a significantly larger cathode surface than in the stationary regime.") Mozgrin at 404, right col, ¶ 2 ("The density ranged from (2 – 2.5) x 10^{14} cm^{-3} at 360 - 540A current up to (1-1.5) x 10^{15} cm^{-3} at 1100-1400 A current.") *<u>Background</u>*: Manos at 231 ("…arcs… are a problem…")
[17c] c) a substrate support that is positioned adjacent to the sputtering target; and	The combination of Mozgrin and Lantsman discloses a substrate support that is positioned adjacent to the sputtering target. Lantsman at Fig. 1 Lantsman at 1:12-14 ("The semiconductor substrate 16 (also known as the wafer) rests on a back plane 18….") One of ordinary skill would have been motivated to use Lantsman's substrate support in Mozgrin's

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'421 Claims 21, 24, and 25	Mozgrin in view of Lantsman and Kudryavtsev
	sputtering systems. First, both Mozgrin and Lantsman are directed to sputtering using plasma. *See* Mozgrin at 409, left col, ¶ 4 ("The implementation of the high-current magnetron discharge (regime 2) in sputtering or layer-deposition technologies provides an enhancement in the flux of deposited materials and plasma density…"); *see also* Lantsman at 1:6-8 ("This invention relates to reduction of device damage in plasma processes, including DC (magnetron or non-magnetron) sputtering, and RF sputtering."). Accordingly, rather than using a "probecollector" described in Mozgrin, one of ordinary skill in the art would have been motivated to use a substrate support that can support a substrate to allow deposition onto a substrate, such as wafer 16. *See* Mozgrin at 403, right col. ¶ 4. Also, both references relate to sputtering systems that use two power supplies, one for pre-ionization and one for deposition. *See* Mozgrin at Fig. 2; *see also* Lantsman at 4:45-47 ("…the secondary [power] supply 32 is used to pre-ignite the plasma, whereas the primary [power] supply 10 is used to generate deposition.") Moreover, both Mozgrin and Lantsman are concerned with generating plasma while avoiding arcing. *See* Mozgrin at 400, right col, ¶ 3 ("The main purpose of this work was to study experimentally a high-power noncontracted quasi-stationary discharge in crossed fields of various geometry and to determine their parameter ranges."); *see also* Lantsman 1:51-59 ("Furthermore, arcing which can be produced by overvoltages can cause local overheating of the target, leading to evaporation or flaking of target material into the processing chamber and causing substrate particle contamination and device damage… Thus, it is advantageous to avoid voltage spikes during processing whenever possible.") Summarizing, Mozgrin and Lantsman relate to the same application. Further, incorporating Lantsman's substrate support into Mozgrin would have been a combination of old elements according to known

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'421 Claims 21, 24, and 25	Mozgrin in view of Lantsman and Kudryavtsev
	methods to yield predictable results.
[17d] d) a bias voltage source having an output that is electrically plasma coupled to the substrate support.	The combination of Mozgrin and Lantsman discloses a bias voltage source having an output that is electrically plasma coupled to the substrate support. Lantsman at Fig. 5 Lantsman at 1:14-17 ("The back plane may be driven by radio frequency (RF) AC voltage signals, produced by an RF power supply 20, which drives the back plane through a compensating network 22.")
21. The sputtering source of claim 17 wherein the voltage pulse generated between the anode and the cathode assembly excites atoms in the weakly-ionized plasma and generates secondary electrons from the cathode assembly, the secondary electrons ionizing a portion of the excited atoms, thereby creating the strongly-ionized plasma.	The combination of Mozgrin, Lantsman, and Kudryavtsev discloses the voltage pulse generated between the anode and the cathode assembly excites atoms in the weakly-ionized plasma and generates secondary electrons from the cathode assembly, the secondary electrons ionizing a portion of the excited atoms, thereby creating the strongly-ionized plasma. *See* evidence cited in claim 17 '421 Patent at 1:44-46 ("Magnetron sputtering systems use magnetic fields that are shaped to trap and to concentrate secondary electrons, which are produced by ion bombardment of the target surface.") '421 Patent at 1:41-43 ("The plasma is replenished by electron-ion pairs formed by the collision of neutral molecules with secondary electrons generated at the target surface.") Mozgrin at 401, ¶ spanning left and right columns ("[d]esigning the [pulsed supply] unit, we took into account the dependences which had been obtained in [Kudryavtsev] of ionization relaxation on pre-ionization parameters, pressure, and pulse voltage amplitude.") Mozgrin at 401, right col, ¶2 ("For pre-ionization … the initial plasma density in the $10^9 – 10^{11}$ cm^{-3} range.") Mozgrin at 409, left col, ¶ 4 ("The implementation of the high-current magnetron discharge (regime 2) in

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