EXHIBIT C.05
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")
- 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")
- Donald L. Smith, Thin-Film Deposition: Principles & Practice, McGraw Hill, 1995 ("Smith")

'421 Claims 6, 17, 22, 23, 27-31, 33, 42, 44, and 45	**Mozgrin in view of Lantsman**
[1pre]. A sputtering source comprising:	Mozgrin discloses a sputtering source. Mozgrin 403, right col, ¶4 ("Regime 2 was characterized by intense cathode sputtering…")
[1a] a) a cathode assembly comprising a sputtering target that is positioned adjacent to an anode; and	Mozgrin 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…")

'421 Claims 6, 17, 22, 23, 27-31, 33, 42, 44, and 45	**Mozgrin in view of Lantsman**
[1b] b) 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, a duration and a rise time of the voltage pulse being chosen to increase a density of ions in the strongly-ionized plasma.	Mozgrin discloses 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, a duration 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

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	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 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…")
6. The sputtering source of claim 1 further	The combination of Mozgrin and Lantsman

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comprising a gas flow controller that controls a flow of the feed gas so that the feed gas diffuses the strongly-ionized plasma.	discloses a gas flow controller that controls a flow of the feed gas so that the feed gas diffuses the strongly-ionized plasma. *See* evidence cited in claim 1 Mozgrin at 401, left col, ¶ 4 ("… applying a square voltage pulse to the discharge gap which was filled up with either neutral or pre-ionized gas.") Lantsman at 3:9-13 ("… at the beginning of processing, this switch is closed and gas is introduced into the chamber. When the plasma process is completed, the gas flow is stopped…") Lantsman at 4:36-38 ("To end processing, primary supply 10 is disabled, reducing the plasma current and deposition on the wafer. Then, gas flow is terminated…") Lantsman at Fig. 6 Lantsman at 5:39-42 ("Sometime thereafter, gas flow is initiated and the gas flow and pressure (trace 48) begin to ramp upwards toward normal processing levels.") Lantsman at 5:42-45 ("After a delay time (54), a normal pressure and flow rate are achieved, and primary supply 10 is enabled, causing a ramp increase in the power produced by the primary supply (trace 52).) 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 use Lantsman's gas flow controllers in Mozgrin's sputtering systems so that the feed gas diffuses the strongly-ionized plasma. First, both Mozgrin and Lantsman are directed to sputtering

'421 Claims 6, 17, 22, 23, 27-31, 33, 42, 44, and 45	Mozgrin in view of Lantsman
	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, one of ordinary skill in the art would have been motivated to continually feed in the feed gas to diffuse the plasma and allow continued deposition to occur. *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 gas flow controllers into Mozgrin would have been a combination of old elements

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