EXHIBIT C.06
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")
- U.S. Pat. No. 5,958,155 ("Kawamata")
- 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 7, 18-20, and 32	Mozgrin in view of Lantsman and Kawamata
[1pre]. A sputtering source comprising:	Mozgrin discloses a sputtering source. Mozgrin 403, right col, ¶4 ("Regime 2 was characterized by intense cathode ***sputtering***…") (emphasis added)
[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

INTEL 1121

'421 Claims 7, 18-20, and 32	**Mozgrin in view of Lantsman and Kawamata**
	deposition rate of the cathode material…")
[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}***).)" (emphasis added) Mozgrin at 400, left col, ¶ 3 ("Some experiments on magnetron systems of various geometry showed that discharge regimes ***which do not***

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	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 that discharge regimes ***which do not transit to arcs*** can be obtained even at high currents.") (emphasis added) 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.") Background: Manos at 231 ("…***arcs***… ***are a problem***…") (emphasis added)

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3. The sputtering source of claim 1 wherein the increase of the density of ions in the strongly-ionized plasma is enough to generate sufficient thermal energy in a surface of the sputtering target to cause a sputtering yield to be related to a temperature of the sputtering target.	The combination of Mozgrin and Kawamata discloses the increase of the density of ions in the strongly-ionized plasma is enough to generate sufficient thermal energy in a surface of the sputtering target to cause a sputtering yield to be related to a temperature of the sputtering target. '421 Patent at 2:9-10 ("In general, the deposition rate is proportional to the sputtering yield.") Kawamata at 3:18-20 ("[G]enerat[ing] plasma over the film source material to thereby cause the surface of the film source material to have its temperature raised by the plasma.") Kawamata at 7:53 ("When the input power is 400 W or higher, it is seen that the surface temperature of granules 3 rises to about 650ºC or higher… When the input power is 800 W, the surface temperature of the granules 3 rises to about 1100 ºC.") Kawamata at 7:51-53 ("FIG. 2 shows what changes of the surface temperature of granules 3 and the rate of film formation on the substrate 2 are brought about by changes of the input power") Kawamata at Fig. 2 One of ordinary skill would have been motivated to incorporate the teachings of Kawamata in Mozgrin, e.g., using input power to control the density of the plasma and thereby control the temperature of the sputtering material so as to control the sputtering yield. Also, one of ordinary skill reading Mozgrin would have looked to Kawamata. Mozgrin teaches that "[t]he 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." Mozgrin at 409, left col, ¶ 4 (emphasis added). Kawamata similarly notes that "[o]bjects of the present invention are to provide a

'421 Claims 7, 18-20, and 32	Mozgrin in view of Lantsman and Kawamata
	process for producing a thin film…***by sputtering at a high speed*** and a thin film produced thereby…" Kawamata at 2:6-9 (emphasis added). Both provide ways to enhance the sputtering rate and one of ordinary skill reading Mozgrin would have looked to Kawamata to learn additional details of controlling sputtering rate. Also, using Kawamata's teachings of temperature control in Mozgrin would have been a combination of old elements in which each element behaved as expected.
6. The sputtering source of claim 1 further comprising a gas flow controller that controls a flow of the feed gas so that the feed gas diffuses the strongly-ionized plasma.	The combination of Mozgrin and Lantsman discloses a gas flow controller that controls a flow of the feed gas so that the feed gas diffuses the strongly-ionized plasma. 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***.") (emphasis added) 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).)

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