EXHIBIT C.04
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")
- D.V. Mozgrin, High-Current Low-Pressure Quasi-Stationary Discharge in a Magnetic Field: Experimental Research, Thesis at Moscow Engineering Physics Institute, 1994 ("Mozgrin Thesis")
- Dennis M. Manos & Daniel L. Flamm, Plasma Etching: An Introduction, Academic Press 1989 ("Manos")

'421 Claims 14 and 37	Mozgrin in view of the Mozgrin Thesis
[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…")
[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	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

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'421 Claims 14 and 37	Mozgrin in view of the Mozgrin Thesis
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.	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 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…")

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'421 Claims 14 and 37	Mozgrin in view of the Mozgrin Thesis
	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…")
14. The sputtering source of claim 1 wherein the rise time of the voltage pulse is in the range of approximately 0.01V/µsec to 1000V/µsec.	The combination of Mozgrin and the Mozgrin Thesis discloses the rise time of the voltage pulse is in the range of approximately 0.01V/µsec to 1000V/µsec. *See* evidence cited in claim 1 Mozgrin at 402, Fig. 3 caption ("Oscillograms of (a) current and (h) voltage of the quasi-stationary discharge (50 µs per div., 180 A per div., 180 V per div.)") Mozgrin at 401, right col, ¶ 1 ("…the supply unit was made providing square voltage and current pulses with [rise] times (leading edge) of 5 – 60 µs...") Mozgrin Thesis at 63, Fig. 3.2 It would have been obvious for one of ordinary skill to combine Mozgrin with the Mozgrin Thesis. Both

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'421 Claims 14 and 37	Mozgrin in view of the Mozgrin Thesis
	Mozgrin and Mozgrin Thesis are written by the same author, address similar subject matter, and describe the same research. The Mozgrin Thesis merely provides additional detail for the material already disclosed in Mozgrin. Thus, a person of ordinary skill reading Mozgrin would have looked to the Mozgrin Thesis to determine additional details not present in Mozgrin such as those shown in Fig. 3.2.
[34pre]. A method for high deposition rate sputtering, the method comprising:	Mozgrin discloses a method for high deposition rate sputtering. Mozgrin at 403, right col, ¶4 ("Region 2 was characterized by intense cathode sputtering….")
[34a] a) generating a voltage pulse between the anode and the cathode assembly comprising a sputtering target, the voltage pulse creating 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; and	Mozgrin discloses generating a voltage pulse between the anode and the cathode assembly comprising a sputtering target, the voltage pulse creating 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. *See* evidence cited in claim [1a] *See* evidence cited in claim [1b]
[34b] b) adjusting an amplitude and a rise time of the voltage pulse to increase a density of ions in the strongly-ionized plasma.	Mozgrin discloses adjusting an amplitude and a rise time of the voltage pulse to increase a density of ions in the strongly-ionized plasma. *See* evidence cited in claim [1b]
37. The method of claim 34 wherein the rise time of the voltage pulse is in the range of approximately 0.01 V/µsec to 1000V/µsec.	The combination of Mozgrin and the Mozgrin Thesis discloses the rise time of the voltage pulse is in the range of approximately 0.01 V/µsec to 1000V/µsec. *See* evidence cited in claim 34 *See* evidence cited in claim 14

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