EXHIBIT C.01
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")
- Dennis M. Manos & Daniel L. Flamm, Plasma Etching: An Introduction, Academic Press 1989 ("Manos")

'421 Claims 1, 2, 8, 10, 11, 15, 16, 34, 38, 39, 43 and 46-48	Mozgrin
[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 between the anode and the cathode assembly, an	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 Claims 1, 2, 8, 10, 11, 15, 16, 34, 38, 39, 43 and 46-48	Mozgrin
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, 3 and 7 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 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

‘421 Claims 1, 2, 8, 10, 11, 15, 16, 34, 38, 39, 43 and 46-48	Mozgrin
	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…”)
2. The sputtering source of claim 1 wherein the strongly ionized plasma at least partially converts neutral sputtered atoms into positive ions in order to enhance the sputtering process with ionized physical vapor deposition.	Mozgrin discloses the strongly ionized plasma at least partially converts neutral sputtered atoms into positive ions in order to enhance the sputtering process with ionized physical vapor deposition. *See* evidence cited in claim 1 Mozgrin at 406, left col, ¶ 1 (“We estimated the steady state average density of the cathode material atoms n_c in the discharge plasma … βg and βe are ionization degrees of gas atoms and cathode material atoms, respectively”) Mozgrin at 406, right col, ¶ 1 (“[t]he [cathode material] fraction turned out to be about 30% and increased with ionization degree.”)
8. The sputtering source of claim 1 further comprising a magnet that is positioned to generate a magnetic field proximate to the weakly-ionized plasma, the magnetic field substantially trapping electrons in the weakly-ionized plasma proximate to the sputtering target.	Mozgrin discloses a magnet that is positioned to generate a magnetic field proximate to the weakly-ionized plasma, the magnetic field substantially trapping electrons in the weakly-ionized plasma proximate to the sputtering target. *See* evidence cited in claim 1 ‘421 Patent at 3:39-63 (FIG. 1 illustrates a cross-sectional view of a known magnetron sputtering apparatus 100 having a pulsed power source 102….The magnet 126 shown in FIG. 1…) ‘421 Patent at 4:31-34 [describing the prior art Fig. 1] (“The electrons, which cause ionization, are generally confined by the magnetic fields produced by the magnet 126. The

'421 Claims 1, 2, 8, 10, 11, 15, 16, 34, 38, 39, 43 and 46-48	Mozgrin
	magnetic confinement is strongest in a confinement region 142….") Mozgrin at Fig. 1 Mozgrin at 401, left col, ¶ 1 ("The electrodes were immersed in a magnetic field of annular permanent magnets.") Mozgrin at 401, right col, ¶2 ("We found out that only the regimes with magnetic field strength not lower than 400 G provided the initial plasma density in the 10^9-10^{11} cm^{-3} range.") (Ex. 1003) Mozgrin at 407, left col, ¶ 3 ("The action of the magnetic field serves only to limit the electron thermal conductivity and to provide collisions sufficient for efficient energy transfer from electrons to heavy particles.")
10. The sputtering source of claim 1 wherein the power supply generates a constant power.	Mozgrin discloses the power supply generates a constant power. *See* evidence cited in claim 1 '421 Patent at Fig. 6 '421 Patent, 15:37-41 (FIG. 6 illustrates graphical representations 320, 322, and 324 of the absolute value of applied voltage, current, and power, respectively, as a function of time for periodic pulses applied to the plasma in the sputtering apparatus 200 of FIG. 4") '421 Patent, 15:56-58 ("Between time t_1 and time t_2, the voltage 326, the current 328, and the power 330 remain constant…") Mozgrin at Figs. 2 and 3
11. The sputtering source of claim 1 wherein the power supply generates a constant voltage.	Mozgrin discloses the power supply generates a constant voltage. *See* evidence cited in claim 1 *See* evidence cited in claim 10
15. The sputtering source of	Mozgrin discloses the amplitude of the voltage pulse is in the

'421 Claims 1, 2, 8, 10, 11, 15, 16, 34, 38, 39, 43 and 46-48	Mozgrin
claim 1 wherein the amplitude of the voltage pulse is in the range of approximately 1V to 25kV.	range of approximately 1V to 25kV. *See* evidence cited in claim 1 Mozgrin at Fig. 4
16. The sputtering source of claim 1 wherein a pulse width of the voltage pulse is in the range of approximately 0.1 µsec to 100 sec.	Mozgrin discloses a pulse width of the voltage pulse is in the range of approximately 0.1 µsec to 100 sec. *See* evidence cited in claim 1 Mozgrin at ¶ spanning 403-404 ("The … pulse duration was 25 ms, and the repetition frequency was 10 Hz….") Mozgrin at 401, right col, ¶ 1 ("Thus, the supply unit was made providing square voltage and current pulses … durations as much as 1.5ms.")
[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]
38. The method of claim 34 wherein the amplitude of the voltage pulse is in the range of	Mozgrin discloses the amplitude of the voltage pulse is in the range of approximately 1V to 25kV.

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