EXHIBIT C.02
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. 5,958,155 ("Kawamata")
- Dennis M. Manos & Daniel L. Flamm, Plasma Etching: An Introduction, Academic Press 1989 ("Manos")

'421 Claims 3-5, 36, 40 and 41	**Mozgrin in view of Kawamata**
[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	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

INTEL 1118
DOCKET ALARM
Find authenticated court documents without watermarks at docketalarm.com.

'421 Claims 3-5, 36, 40 and 41	Mozgrin in view of Kawamata
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.	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 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

DOCKET ALARM Find authenticated court documents without watermarks at docketalarm.com.

'421 Claims 3-5, 36, 40 and 41	**Mozgrin in view of Kawamata**
	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…")
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. *See* evidence cited in claim 1 '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.")

DOCKET ALARM Find authenticated court documents without watermarks at docketalarm.com.

'421 Claims 3-5, 36, 40 and 41	Mozgrin in view of Kawamata
	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. Kawamata similarly notes that "[o]bjects of the present invention are to provide a process for producing a thin film…by sputtering at a high speed and a thin film produced thereby…" Kawamata at 2:6-9. 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.
4. The sputtering source of claim 3 wherein the sputtering yield is related to a temperature of a surface of the sputtering target.	The combination of Mozgrin and Kawamata discloses the sputtering yield is related to a temperature of a surface of the sputtering target.

DOCKET ALARM Find authenticated court documents without watermarks at docketalarm.com.

'421 Claims 3-5, 36, 40 and 41	**Mozgrin in view of Kawamata**
	See evidence cited in claim 1 *See* evidence cited in claim 3 Kawamata at Fig. 2
5. The sputtering source of claim 3 wherein the thermal energy generated in the sputtering target does not substantially increase an average temperature of the sputtering target.	The combination of Mozgrin and Kawamata discloses the thermal energy generated in the sputtering target does not substantially increase an average temperature of the sputtering target. *See* evidence cited in claim 1 *See* evidence cited in claim 3 '421 Patent at 20:52-56 ("When the temperature of the target 220 reaches a certain level, the target material is evaporated in an avalanche-like manner. In one embodiment, the high-power pulse generates thermal energy 516 into only a shallow depth of the target 220 so as to not substantially increase an average temperature of the target 220.") '421 Patent at 9:57-61 ("the thermal energy in at least one of the cathode assembly… is conducted away or dissipated by liquid or gas cooling…") Kawamata at 7:36-40 ("The [sputtering target was] heated by the plasma with their temperature maintained by a balance between plasma heating and cooling by cooling water 8 flowing on the lower face of the magnetron cathode 5….") Kawamata at Fig. 1 Mozgrin at 401, left col, ¶ 1 ("The cathode was placed on a cooled surface.")
[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	Mozgrin discloses generating a voltage pulse between the anode and the cathode assembly

DOCKET ALARM
Find authenticated court documents without watermarks at docketalarm.com.

DOCKET ALARM

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts

Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research

With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips

Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.

WHAT WILL YOU BUILD? | **sales@docketalarm.com** | **1-866-77-FASTCASE**

fastcase®
Smarter legal research.