EXHIBIT C.14
U.S. Patent No. 7,811,421

References cited herein:

- U.S. Pat. No. 7,811,421 ("'421 Patent")
- U.S. Pat. No. 6,413,382 ("Wang")
- U.S. Pat. No. 6,190,512 ("Lantsman")
- U.S. Pat. No. 5,958,155 ("Kawamata")

'421 Claims 7 and 32	Wang in view of Lantsman and Kawamata
[1pre]. A sputtering source comprising:	Wang discloses a sputtering source. Wang at Title ("pulsed sputtering with a small rotating magnetron")
[1a] a) a cathode assembly comprising a sputtering target that is positioned adjacent to an anode; and	Wang 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.") Wang at 3:66-4:1 ("A grounded shield 24 … acts as a grounded anode for the cathode of the negatively biased target 14.")
[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.	Wang 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 Wang at Figs. 1, 6 and 7 Wang at 7:58-61 ("… DC power supply 100 is connected to the target 14 … and supplies an

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	essentially constant negative voltage to the target 14 corresponding to the background power P_B.”) Wang at 7:61-62 (“The pulsed DC power supply 80 produces a train of negative voltage pulses.”) Wang at 3:66-4:1 (“A grounded shield 24 … acts as a grounded anode for the cathode of the negatively biased target 14.”) Wang at 7:17-31 (“The background power level P_B is chosen to exceed the minimum power necessary to support a plasma... [T]he application of the high peak power P_P quickly causes the already existing plasma to spread and increases the density of the plasma.”) Wang at 7:19-25 (“Preferably, the peak power P_P is at least 10 times the background power P_B … and most preferably 1000 times to achieve the greatest effect of the invention. A background power P_B of 1 kW [causes] little if any actual sputter deposition.”) Wang at 7:31-39 (“In one mode of operating the reactor, during the background period, little or no target sputtering is expected. The SIP reactor is advantageous for a low-power, low-pressure background period since the small rotating SIP magnetron can maintain a plasma at lower power and lower pressure than can a larger stationary magnetron. However, it is possible to combine highly ionized sputtering during the pulses with significant neutral sputtering during the background period.”) Wang at 7:3-6 (“Plasma ignition, particularly in plasma sputter reactors, has a tendency to generate particles during the initial arcing, which may dislodge large particles from the target or chamber.”) Wang at 7:13-28 (“Accordingly, it is advantageous to use a target power waveform illustrated in FIG.

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	6… As a result, once the plasma has been ignited at the beginning of sputtering prior to the illustrated waveform…") Wang at 7:47-49 ("The initial plasma ignition needs be performed only once and at much lower power levels so that particulates produced by arcing are much reduced.") Wang at 7:28-30 ("…the application of the high peak power P_P instead quickly causes the already existing plasma to spread and increases the density of the plasma") Wang at 5:23-26 ("The illustrated pulse form is idealized. Its exact shape depends on the design of the pulsed DC power supply 80, and significant rise times and fall times are 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 Wang 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. *See* evidence cited at claim 1 Wang at Fig. 1 Wang at 4:51-55 ("A computerized controller 58 controls the … mass flow controller 34, as illustrated….") Wang at 4:11-12 ("A vacuum system 38 pumps the chamber….") 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…")

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	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 combine Wang and Lantsman. Both Wang and Lantsman are directed to sputtering using plasma. *See* Wang at Title ("Pulsed sputtering with a small rotating magnetron"); *see also,* Wang at 3:20-21 ("[A] high plasma density is achieved adjacent to the magnetron during the pulse."); *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."). Also, both references relate to sputtering systems that use two power supplies, one for pre-ionization and one for deposition. *See* Wang at Fig. 7 [*showing pulsed supply 80 and constant supply 100*]; *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 Wang and Lantsman are concerned with generating plasma while avoiding arcing. *See* Wang at 7:3-49 ("Plasma ignition, particularly in plasma sputter reactors, has a tendency to generate particles during the initial arcing, which may dislodge large particles from the target or

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	chamber…. The initial plasma ignition needs be performed only once and at much lower power levels so that particulates produced by arcing are much reduced.”); *see also* Lantsman (“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, Wang and Lantsman relate to the same application. Further, one of ordinary skill would have been motivated to use Lantsman’s continuous gas flow in Wang so as to maintain a desired pressure in the chamber. Also, use of Lantsman’s continuous gas flow in Wang would have been a combination of old elements in which each element behaved as expected. Finally, such a continuous flow of gas in Wang would diffuse the strongly-ionized plasma and allow additional power to be absorbed by the plasma.
7. The sputtering source of claim 6 wherein the gas flow controller controls the flow of the feed gas to allow additional power to be absorbed by the strongly ionized plasma, thereby generating additional thermal energy in the sputtering target.	The combination of Wang, Lantsman, and Kawamata discloses the gas flow controller controls the flow of the feed gas to allow additional power to be absorbed by the strongly ionized plasma, thereby generating additional thermal energy in the sputtering target. *See* evidence cited in claim 1 *See* evidence cited in claim 6 ‘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

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