EXHIBIT C.11
U.S. Patent No. 7,811,421

Referenced cited herein:

- U.S. Pat. No. 7,811,421 ("'421 Patent")
- U.S. Pat. No. 6,413,382 ("Wang")
- 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")

'421 Claims 14, 26, and 37	Wang in view of Mozgrin Thesis
[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	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

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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 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.")

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	Wang at 7:13-28 ("Accordingly, it is advantageous to use a target power waveform illustrated in FIG. 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.")
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 Wang, 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 Thesis at 42, ¶ 1 ("…a power supply was selected which produces square current and voltage pulses with a rise time (leading edge of the pulse) of 5 – 60 µs...") Mozgrin Thesis at 63, Fig. 3.2 One of ordinary skill in the art would have been motivated to combine Wang and Mozgrin Thesis. Wang and Mozgrin Thesis are both pulsed magnetron sputtering systems. If Wang's densities were different than those identified in Mozgrin Thesis, one of ordinary skill would have been motivated to adjust Wang's power levels and pulse characteristics so as to use Mozgrin Thesis's plasma

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	densities, e.g., so as to achieve desired sputtering. As explained with respect to claim 15, one of ordinary skill reading Wang would have looked to Mozgrin Thesis for details such as voltages and rise times. Finally, use of the Mozgrin Thesis' rise time in Wang would have been a combination of old elements to yield predictable results.
[17pre]. A sputtering source comprising:	Wang discloses a sputtering source. *See* evidence cited in claim 1 preamble
[17a] a) a cathode assembly comprising a sputtering target that is positioned adjacent to an anode;	Wang discloses a cathode assembly comprising a sputtering target that is positioned adjacent to an anode. *See* evidence cited in claim [1a]
[17b] 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 and a rise time of the voltage pulse being chosen to increase a density of ions in the strongly-ionized plasma; and	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 and a rise time of the voltage pulse being chosen to increase a density of ions in the strongly-ionized plasma. *See* evidence cited in claim [1b]
[17c] c) a substrate support that is positioned adjacent to the sputtering target; and	Wang discloses a substrate support that is positioned adjacent to the sputtering target. Wang at 3:63-66 ("A pedestal electrode 18 supports a wafer 20 to be sputter coated in planar opposition to the target 14 across a processing region 22.")
[17d] d) a bias voltage source having an output that is electrically plasma. coupled to the substrate support.	Wang discloses a bias voltage source having an output that is electrically plasma. coupled to the substrate support. Wang at Fig. 1 Wang at 4:32-34 ("[A]n RF bias power supply is

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'421 Claims 14, 26, and 37	Wang in view of Mozgrin Thesis
	connected to the pedestal electrode 18 to create a negative DC self-bias on the wafer 20")
26. The sputtering source of claim 17 wherein the rise time of the voltage pulse is in the range of approximately 0.01V/µsec to 1000V/µsec.	The combination of Wang, 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 17 *See* evidence cited in claim 14
[34pre]. A method for high deposition rate sputtering, the method comprising:	Wang discloses a method for high deposition rate sputtering. Wang at Title ("pulsed sputtering with a small rotating magnetron") Wang at 7:19-25 ("Preferably, the peak power *Pp* is at least 10 times the background power *Ps,* more preferably at least 100 times, and most preferably 1000 times to achieve the greatest effect of the invention. A background power *Ps* of 1 kW will typically be sufficient to support a plasma with the torpedo magnetron and a 200 mm wafer although with little if any actual sputter deposition.") Wang at 7:36-39 ("However, it is possible to combine highly ionized sputtering during the pulses with significant neutral sputtering during the background period.")
[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	Wang 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]

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