

**EXHIBIT D.07**  
**U.S. Patent No. 6,853,142**

References cited herein:

- U.S. Pat. No. 6,853,142 (“’142 Patent”)
- U.S. Pat. No. 6,413,382 (“Wang”)
- U.S. Pat. No. 6,190,512 (“Lantsman”)

<b>‘142 Claims 1, 3-7, 9, 10, 12, 14, 15, 19, 20, 40, and 42</b>	<b>Wang in view of Lantsman</b>
<p>[1pre.] An apparatus for generating a strongly-ionized plasma in a chamber, the apparatus comprising:</p>	<p>The combination of Wang and Lantsman discloses an apparatus for generating a strongly-ionized plasma in a chamber.</p> <p>Wang at 7:19-25 (“Preferably, the peak power <math>P_p</math> is at least 10 times the background power <math>P_B</math>, more preferably at least 100 times, and most preferably 1000 times to achieve the greatest effect of the invention. A background power <math>P_B</math> of 1kW 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.”)</p> <p>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.”)</p> <p>Wang at 7:28-30 (“ the application of the high peak power <math>P_p</math> instead quickly causes the already existing plasma to spread and increases the density of the plasma”)</p>
<p>[1a.] an ionization source that generates a weakly-ionized plasma from a feed gas, the weakly-ionized plasma reducing the probability of developing an electrical breakdown condition in the chamber;</p>	<p>The combination of Wang and Lantsman discloses an ionization source that generates a weakly-ionized plasma from a feed gas, the weakly-ionized plasma reducing the probability of developing an electrical breakdown condition in the chamber.</p> <p>Wang at Fig. 7</p> <p>Wang at 4:5-6 (“A sputter working gas such as argon is supplied from a gas source 32....”)</p>

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<b>'142 Claims 1, 3-7, 9, 10, 12, 14, 15, 19, 20, 40, and 42</b>	<b>Wang in view of Lantsman</b>
	<p>Wang at 4:20-21 (“... a reactive gas, for example nitrogen is supplied to the processing space 22....”)</p> <p>Wang at 7:17-31 (“The background power level <math>P_B</math> is chosen to exceed the minimum power necessary to support a plasma... [T]he application of the high peak power <math>P_P</math> quickly causes the already existing plasma to spread and increases the density of the plasma.”)</p> <p>Wang at 7:19-25 (“Preferably, the peak power <math>P_P</math> is at least 10 times the background power <math>P_B</math> ... and most preferably 1000 times to achieve the greatest effect of the invention. A background power <math>P_B</math> of 1 kW [causes] little if any actual sputter deposition.”)</p> <p>Wang at 4:23-31 (Ex. 1005) (“...thus creating a region 42 of a high-density plasma (HDP)...”)</p> <p>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 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.”)</p> <p>Wang at 7:25-28 (“As a result, once the plasma has been ignited at the beginning of sputtering prior to the illustrated waveform, no more plasma ignition occurs.”).</p> <p>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 <math>P_B</math>.”)</p> <p>Wang at 7:22-23 (“A background power <math>P_B</math> of 1 kW will typically be sufficient to support a plasma...”)</p>
[1b.] a power supply that supplies power to the weakly-ionized plasma though an electrical pulse applied across the weakly-ionized plasma, the electrical pulse having a	The combination of Wang and Lantsman discloses a power supply that supplies power to the weakly-ionized plasma though an electrical pulse applied across the weakly-ionized plasma, the electrical pulse having a magnitude and a rise-time that is sufficient to increase the density of the weakly-

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<p><b>‘142 Claims 1, 3-7, 9, 10, 12, 14, 15, 19, 20, 40, and 42</b></p>	<p style="text-align: center;"><b>Wang in view of Lantsman</b></p>
<p>magnitude and a rise-time that is sufficient to increase the density of the weakly-ionized plasma to generate a strongly-ionized plasma; and</p>	<p>ionized plasma to generate a strongly-ionized plasma.</p> <p>Wang at Fig. 7</p> <p>Wang at 7:61-62 (“The pulsed DC power supply 80 produces a train of negative voltage pulses.”)</p> <p>Wang at 7:19-25 (“Preferably, the peak power level <math>P_P</math> is at least 10 times the background power level <math>P_B</math>, ... most preferably 1000 times to achieve the greatest effects of the invention. A background power <math>P_B</math> of 1 kW will typically be sufficient...”)</p> <p>Wang at 7:28-30 (“... the application of the high peak power <math>P_P</math> instead quickly causes the already existing plasma to spread and increases the density of the plasma.”).</p> <p>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.”)</p> <p>Wang at 5:23-27 (“[The pulse’s] exact shape depends on the design of the pulsed DC power supply 80, and significant rise times and fall times are expected.”)</p> <p><i>See evidence cited in limitation [1pre] of claim 1.</i></p>
<p>[1c.] a gas line that supplies feed gas to the strongly-ionized plasma, the feed gas diffusing the strongly-ionized plasma, thereby allowing additional power from the pulsed power supply to be absorbed by the strongly-ionized plasma.</p>	<p>The combination of Wang and Lantsman discloses a gas line that supplies feed gas to the strongly-ionized plasma, the feed gas diffusing the strongly-ionized plasma, thereby allowing additional power from the pulsed power supply to be absorbed by the strongly-ionized plasma.</p> <p>Wang at Fig. 1</p> <p>Wang at 4:5-6 (“A sputter working gas such as argon is supplied from a gas source 32 through a mass flow controller 34 to a region in back of the grounded shield 24.”)</p> <p>Wang at 4:8-10 (“The gas flows into the processing region 22 through a gap formed between the pedestal 18, the grounded shield 24, and a clamp ring or plasma focus ring 36 surrounding the periphery of the wafer 20.”)</p>

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<b>'142 Claims 1, 3-7, 9, 10, 12, 14, 15, 19, 20, 40, and 42</b>	<b>Wang in view of Lantsman</b>
	<p>Wang at 4:51-55 ("A computerized controller 58 controls the ... mass flow controller 34, as illustrated....")</p> <p>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.")</p> <p>One of ordinary skill would have been motivated to combine Wang and Lantsman. Lantsman is directed to sputtering using a plasma. So is Wang. <i>See</i> Wang at Title ("Pulsed sputtering with a small rotating magnetron"); 3:20-21 ("[A] high plasma density is achieved adjacent to the magnetron during the pulse."). Also, Lantsman uses two power supplies, one for pre-ionization and one for deposition. So does Wang. <i>See</i> Wang at Fig. 7 [<i>showing pulsed supply 80 and constant supply 100</i>]</p> <p>Lantsman generates a plasma without arcing. So does Wang. Wang at 7:3-49 ("Plasma ignition, particularly in plasma sputter reactors, has a tendency to generate particles during the initial arcing, .... The initial plasma ignition needs be performed only once and at much lower power levels so that particulates produced by arcing are much reduced.")</p> <p>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 worked well with Wang's mass flow controller 34 and 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 as required by claim 1.</p>
<p>3. The apparatus of claim 1 wherein the gas line supplies additional feed gas that exchanges the weakly-ionized plasma while applying the electrical pulse across.</p>	<p>The combination of Wang and Lantsman discloses the gas line supplies additional feed gas that exchanges the weakly-ionized plasma while applying the electrical pulse across.</p> <p><i>See</i> evidence cited in claim 1</p>

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‘142 Claims 1, 3-7, 9, 10, 12, 14, 15, 19, 20, 40, and 42	Wang in view of Lantsman
4. The apparatus of claim 1 wherein the power supply generates a constant power.	<p>The combination of Wang and Lantsman discloses the power supply generates a constant power.</p> <p><i>See evidence cited in claim 1</i></p> <p>‘142 Patent at Fig. 4</p> <p>Wang at Figs. 1, 6 and 7</p> <p>Lantsman at 1:22-24 (“A typical DC power supply 10 includes a relatively sophisticated control system, designed to permit operation in constant power, constant voltage, or constant current modes.”)</p>
5. The apparatus of claim 1 wherein the power supply generates a constant voltage.	<p>The combination of Wang and Lantsman discloses the power supply generates a constant voltage.</p> <p><i>See evidence cited in claim 1</i></p> <p>Wang at 7:61-62 (“pulsed DC power supply 80 produces a train of negative voltage pulses.”)</p> <p>One of ordinary skill would have understood that Wang’s voltage would be constant for at least a portion of the duration of the pulse <math>\tau_w</math> so as to produce pulse <math>P_p</math> of constant power.</p> <p>Lantsman at 1:22-24 (“A typical DC power supply 10 includes a relatively sophisticated control system, designed to permit operation in constant power, constant voltage, or constant current modes.”)</p>
6. The apparatus of claim 1 wherein the ionization source is chosen from the group comprising an electrode coupled to a DC power supply, an electrode coupled to an AC power supply, a UV source, an X-ray source, an electron beam source, an ion beam source, an inductively coupled plasma	<p>The combination of Wang and Lantsman discloses the ionization source is chosen from the group comprising an electrode coupled to a DC power supply, an electrode coupled to an AC power supply, a UV source, an X-ray source, an electron beam source, an ion beam source, an inductively coupled plasma source, a capacitively coupled plasma source, and a microwave plasma source.</p> <p><i>See evidence cited in claim 1</i></p> <p>Wang at 7:58 (“... DC power supply 100 is connected to the</p>

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'142 Claims 1, 3-7, 9, 10, 12, 14, 15, 19, 20, 40, and 42	Wang in view of Lantsman
source, a capacitively coupled plasma source, and a microwave plasma source.	target 14.”)  Wang at Figs. 1 and 7
7. The apparatus of claim 1 further comprising a magnet that is positioned to generate a magnetic field proximate to the weakly-ionized plasma, the magnetic field trapping electrons in the weakly-ionized plasma.	The combination of Wang and Lantsman discloses a magnet that is positioned to generate a magnetic field proximate to the weakly-ionized plasma, the magnetic field trapping electrons in the weakly-ionized plasma.  <i>See</i> evidence cited in claim 1  '142 Patent at 1:41-43 [ <i>in the Background of the Invention</i> ] (“Magnetron sputtering systems use magnetic fields that are shaped to trap and concentrate secondary electrons....”)  Wang at 4:23-31 (“A small rotatable magnetron 40 is thus creating a region 42 of a high-density plasma (HDP)....”)  Wang at Fig. 1
9. The apparatus of claim 7 wherein the magnet is movable.	The combination of Wang and Lantsman discloses the magnet is movable.  <i>See</i> evidence cited in claim 7  Wang at 4:23-24 (“A small <b>rotatable</b> magnetron 40 is disposed in the back of the target 14”) (emphasis added)
[10pre.] A method for generating a strongly-ionized plasma in a chamber, the method comprising:	The combination of Wang and Lantsman discloses a method for generating a strongly-ionized plasma in a chamber.  <i>See</i> evidence cited in claim 1 preamble.
[10a.] ionizing a feed gas to form a weakly-ionized plasma that reduces the probability of developing an electrical breakdown condition in the chamber;	The combination of Wang and Lantsman discloses ionizing a feed gas to form a weakly-ionized plasma that reduces the probability of developing an electrical breakdown condition in the chamber.  <i>See</i> evidence cited limitation [1a] in claim 1.
[10b.] supplying power to the weakly-ionized plasma by applying an electrical pulse across the weakly-ionized	The combination of Wang and Lantsman discloses supplying power to the weakly-ionized plasma by applying an electrical pulse across the weakly-ionized plasma, the electrical pulse having a magnitude and a rise-time that is

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plasma, the electrical pulse having a magnitude and a rise-time that is sufficient to increase the density of the weakly-ionized plasma to generate a strongly-ionized plasma; and	sufficient to increase the density of the weakly-ionized plasma to generate a strongly-ionized plasma.  <i>See evidence cited in limitation [1b] in claim 1.</i>
[10c.] diffusing the strongly-ionized plasma with additional feed gas thereby allowing the strongly-ionized plasma to absorb additional energy from the power supply.	The combination of Wang and Lantsman discloses diffusing the strongly-ionized plasma with additional feed gas thereby allowing the strongly-ionized plasma to absorb additional energy from the power supply.  <i>See evidence cited in limitation [1c] in claim 1.</i>
12. The method of claim 10 further comprising exchanging the weakly-ionized plasma with additional feed gas.	The combination of Wang and Lantsman discloses  <i>See evidence cited in claim 10</i>
14. The method of claim 10 further comprising selecting at least one of a pulse amplitude and a pulse width of the electrical pulse in order to increase an ionization rate of the strongly-ionized plasma.	The combination of Wang and Lantsman discloses selecting at least one of a pulse amplitude and a pulse width of the electrical pulse in order to increase an ionization rate of the strongly-ionized plasma.  <i>See evidence cited in claim 10</i>  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 Fig. 6
15. The method of claim 10 further comprising selecting at least one of a pulse amplitude and a pulse width of the electrical pulse in order to cause the strongly-ionized plasma to be substantially uniform.	The combination of Wang and Lantsman discloses selecting at least one of a pulse amplitude and a pulse width of the electrical pulse in order to cause the strongly-ionized plasma to be substantially uniform.  <i>See evidence cited in claim 10</i>  Wang at Figs. 6, 7  Wang at 5:23-26 (“The illustrated pulse form is idealized. Its exact shape depends on the design of the pulsed DC

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<b>'142 Claims 1, 3-7, 9, 10, 12, 14, 15, 19, 20, 40, and 42</b>	<b>Wang in view of Lantsman</b>
	<p>power supply 80, and significant rise times and fall times are expected.”)</p> <p>Wang at 4:49-51 (“The rotation scans the HDP region 42 about the face of the target 14 to more evenly erode the target 14 and to produce a more uniform sputter coating on the wafer 20.”)</p>
<p>19. The method of claim 10 wherein the ionizing the feed gas comprises exposing the feed gas to one of a static electric field, an pulsed electric field, UV radiation, X-ray radiation, electron beam radiation, and an ion beam.</p>	<p>The combination of Wang and Lantsman discloses the ionizing the feed gas comprises exposing the feed gas to one of a static electric field, an pulsed electric field, UV radiation, X-ray radiation, electron beam radiation, and an ion beam.</p> <p><i>See evidence cited in claim 10</i></p> <p>Wang at Fig. 7</p> <p>Wang at 7:61-63 (“The pulsed DC power supply 80 produces a train of negative voltage pulses....”)</p>
<p>20. The method of claim 10 further comprising generating a magnetic field proximate to the weakly-ionized plasma, the magnetic field trapping electrons in the weakly-ionized plasma.</p>	<p>The combination of Wang and Lantsman discloses generating a magnetic field proximate to the weakly-ionized plasma, the magnetic field trapping electrons in the weakly-ionized plasma.</p> <p><i>See evidence cited in claim 10</i></p> <p><i>See evidence cited in claim 7</i></p>
<p>[40pre.] An apparatus for generating a strongly-ionized plasma in a chamber, the apparatus comprising:</p>	<p>The combination of Wang and Lantsman discloses an apparatus for generating a strongly-ionized plasma in a chamber.</p> <p>Wang at 7:19-25 (“Preferably, the peak power <math>P_P</math> is at least 10 times the background power <math>P_B</math>, more preferably at least 100 times, and most preferably 1000 times to achieve the greatest effect of the invention. A background power <math>P_B</math> of 1kW 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.”)</p> <p>Wang at 7:31-39 (“In one mode of operating the reactor, during the background period, little or no target sputtering is</p>



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<b>'142 Claims 1, 3-7, 9, 10, 12, 14, 15, 19, 20, 40, and 42</b>	<b>Wang in view of Lantsman</b>
	<p>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.”)</p> <p>Wang at 7:28-30 (“ the application of the high peak power <math>P_p</math> instead quickly causes the already existing plasma to spread and increases the density of the plasma”)</p>
<p>[40a.] means for ionizing a feed gas to form a weakly-ionized plasma that reduces the probability of developing an electrical breakdown condition in the chamber;</p>	<p>The combination of Wang and Lantsman discloses means for ionizing a feed gas to form a weakly-ionized plasma that reduces the probability of developing an electrical breakdown condition in the chamber.</p> <p><u>Claimed function</u></p> <p>Claim 40 recites “means for ionizing a feed gas to form a weakly-ionized plasma that reduces the probability of developing an electrical breakdown condition in the chamber.”</p> <p>The combination of Wang and Lantsman teach the function corresponding to the “means for ionizing...” limitation.</p> <p>Wang at 4:5-6 (“A sputter working gas such as argon is supplied from a gas source 32....”)</p> <p>Wang at 4:20-21 (“... a reactive gas, for example nitrogen is supplied to the processing space 22....”)</p> <p>Wang at 7:17-31 (“The background power level <math>P_B</math> is chosen to exceed the minimum power necessary to support a plasma... [T]he application of the high peak power <math>P_p</math> quickly causes the already existing plasma to spread and increases the density of the plasma.”)</p> <p>Wang at 7:19-25 (“Preferably, the peak power <math>P_p</math> is at least 10 times the background power <math>P_B</math> ... and most preferably 1000 times to achieve the greatest effect of the invention. A background power <math>P_B</math> of 1 kW [causes] little if any actual sputter deposition.”)</p>

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'142 Claims 1, 3-7, 9, 10, 12, 14, 15, 19, 20, 40, and 42	Wang in view of Lantsman
	<p>Wang at 4:23-31 (Ex. 1005) (“...<u>thus creating a region 42 of a high-density plasma (HDP)</u>...”)</p> <p>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 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.”)</p> <p>Wang at 7:25-28 (“As a result, once the plasma has been ignited at the beginning of sputtering prior to the illustrated waveform, no more plasma ignition occurs.”).</p> <p><u>Corresponding structure</u></p> <p>The ‘142 Patent discloses the following structure that corresponds to the means for ionizing:</p> <p>a power supply, generating the voltage, current and power values shown in Fig. 4 (e.g., between <math>t_1 - t_2</math> and <math>t_6 - t_7</math>), electrically coupled to cathode (e.g., 204), anode (e.g., 216) and/or an electrode (e.g., 452, 452’), wherein the cathode, anode and/or electrode are arranged relative to a sputtering target as shown in Figs. 2A-2D and 6A-6D, and as described in the text of the ‘142 Patent at 5:5-36, 16:24-40, 17:40-18:12, 18:13-34, and 18:35-46</p> <p>The combination of Wang and Lantsman discloses the structure corresponding to the “means for ionizing...” limitation. For example:</p> <p>Wang at Fig. 7</p> <p>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 <math>P_B</math>.”)</p> <p>Wang at 7:22-23 (“A background power <math>P_B</math> of 1 kW will typically be sufficient to support a plasma...”)</p> <p>Any difference between Wang’s and the ‘142 Patent’s</p>

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<b>‘142 Claims 1, 3-7, 9, 10, 12, 14, 15, 19, 20, 40, and 42</b>	<b>Wang in view of Lantsman</b>
	<p>mechanical arrangement of the anode and cathode is nothing more than the mechanical rearrangement of well-known components. Rearranging Wang’s components to match that of the ‘142 Patent would be obvious to one of ordinary skill.</p>
<p>[40b.] means for supplying power to the weakly-ionized plasma by applying an electrical pulse across the weakly-ionized plasma, the electrical pulse having a magnitude and a rise-time that is sufficient to increase the density of the weakly-ionized plasma to generate a strongly-ionized plasma; and</p>	<p>The combination of Wang and Lantsman discloses means for supplying power to the weakly-ionized plasma by applying an electrical pulse across the weakly-ionized plasma, the electrical pulse having a magnitude and a rise-time that is sufficient to increase the density of the weakly-ionized plasma to generate a strongly-ionized plasma.</p> <p><u>Claimed function</u></p> <p>Claim 40 recites “means for supplying power to the weakly-ionized plasma by applying an electrical pulse across the weakly-ionized plasma, the electrical pulse having a magnitude and a rise-time that is sufficient to increase the density of the weakly-ionized plasma to generate a strongly-ionized plasma.”</p> <p>The combination of Wang and Lantsman teach the function corresponding to the “means for supplying power...”</p> <p>Wang at Fig. 7</p> <p>Wang at 7:61-62 (“The pulsed DC power supply 80 produces a train of negative voltage pulses.”)</p> <p>Wang at 7:19-25 (“Preferably, the peak power level <math>P_P</math> is at least 10 times the background power level <math>P_B</math>, ... most preferably 1000 times to achieve the greatest effects of the invention. A background power <math>P_B</math> of 1 kW will typically be sufficient...”)</p> <p>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.”)</p> <p>Wang at 5:23-27 (“[The pulse’s] exact shape depends on the design of the pulsed DC power supply 80, and significant rise times and fall times are expected.”)</p>

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<b>‘142 Claims 1, 3-7, 9, 10, 12, 14, 15, 19, 20, 40, and 42</b>	<b>Wang in view of Lantsman</b>
	<p><i>See</i> evidence cited in limitation [40pre] of claim 40.</p> <p><u>Corresponding structure</u></p> <p>The ‘142 Patent discloses the following structure that corresponds to the “means for supplying power...”:</p> <p>pulsed power supply (e.g., 202), generating the voltage, current and power values shown in Fig. 4 (e.g., between <math>t_2 - t_4</math>), electrically coupled to a cathode (e.g., 204) and anode (e.g., 216), wherein the cathode and anode are arranged relative to a sputtering target as shown in Figs. 2A-2D and 6A-6D, and as described in the text of the ‘142 Patent at 6:57-7:31, 8:16-25, 12:1-16, 13:25-55, 13:63-14:5, 17:12-33, 19:3-14, and 19:22-32</p> <p>The combination of Wang and Lantsman teach the structure corresponding to the “means for supplying power...” limitation. For example:</p> <p>Wang at Fig. 7</p> <p>Wang at 7:61-62 (“The pulsed DC power supply 80 produces a train of negative voltage pulses.”)</p> <p>Any difference between Wang’s and the ‘142 Patent’s mechanical arrangement of the anode and cathode is nothing more than the mechanical rearrangement of well-known components. Rearranging Wang’s components to match that of the ‘142 Patent would be obvious to one of ordinary skill.</p>
<p>[40c.] means for diffusing the strongly-ionized plasma with additional feed gas to allow additional power to be absorbed by the strongly-ionized plasma.</p>	<p>The combination of Wang and Lantsman discloses means for diffusing the strongly-ionized plasma with additional feed gas to allow additional power to be absorbed by the strongly-ionized plasma.</p> <p><u>Claimed function</u></p> <p>Claim 40 recites “means for diffusing the strongly-ionized plasma with additional feed gas to allow additional power to be absorbed by the strongly-ionized plasma.”</p> <p>The combination of Wang and Lantsman teach the function</p>

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<b>'142 Claims 1, 3-7, 9, 10, 12, 14, 15, 19, 20, 40, and 42</b>	<b>Wang in view of Lantsman</b>
	<p>corresponding to “means for diffusing...”</p> <p>Wang at Fig. 1</p> <p>Wang at 4:5-6 (“A sputter working gas such as argon is supplied from a gas source 32 through a mass flow controller 34 to a region in back of the grounded shield 24.”)</p> <p>Wang at 4:8-10 (“The gas flows into the processing region 22 through a gap formed between the pedestal 18, the grounded shield 24, and a clamp ring or plasma focus ring 36 surrounding the periphery of the wafer 20.”)</p> <p>Wang at 4:51-55 (“A computerized controller 58 controls the ... mass flow controller 34, as illustrated....”)</p> <p>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.”)</p> <p>One of ordinary skill would have been motivated to combine Wang and Lantsman. Lantsman is directed to sputtering using a plasma. So is Wang. <i>See</i> Wang at Title (“Pulsed sputtering with a small rotating magnetron”); 3:20-21 (“[A] high plasma density is achieved adjacent to the magnetron during the pulse.”). Also, Lantsman uses two power supplies, one for pre-ionization and one for deposition. So does Wang. <i>See</i> Wang at Fig. 7 [<i>showing pulsed supply 80 and constant supply 100</i>]</p> <p>Lantsman generates a plasma without arcing. So does Wang. Wang at 7:3-49 (“Plasma ignition, particularly in plasma sputter reactors, has a tendency to generate particles during the initial arcing, .... The initial plasma ignition needs be performed only once and at much lower power levels so that particulates produced by arcing are much reduced.”)</p> <p>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 worked well with Wang’s mass flow controller 34 and would</p>

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	<p>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 as required by claim 40.</p> <p><u>Corresponding structure</u></p> <p>The '142 Patent discloses the following structure that corresponds to the “means for diffusing...” limitation:</p> <p>feed gas lines 224 as shown in Figs. 2A-2D and 6A-D and as described in the text of the '142 Patent at 4:48-5:4</p> <p>The combination of Mozgrin and Lantsman teach the structure corresponding to the “means for diffusing...” limitation. For example:</p> <p>Wang at Fig. 1 [showing gas flow controller 34 and gas line]</p>
<p>42. The apparatus of claim 1 wherein the power supply comprises the ionization source.</p>	<p>The combination of Wang and Lantsman discloses the power supply comprises the ionization source.</p> <p><i>See evidence cited in claim 1</i></p> <p>Wang at Fig. 7</p> <p>Wang at 7:57-63 (“A variable 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 <math>P_B</math>. The pulsed DC power supply 80 produces a train of negative voltage pulses....”)</p>