**PATENT ASSIGNMENT**

Electronic Version v1.1  
Stylesheet Version v1.1

<table>
<thead>
<tr>
<th>SUBMISSION TYPE:</th>
<th>NEW ASSIGNMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NATURE OF CONVEYANCE:</th>
<th>ASSIGNMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CONVEYING PARTY DATA**

<table>
<thead>
<tr>
<th>Name</th>
<th>Execution Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wolfgang SINGER</td>
<td>05/20/2011</td>
</tr>
<tr>
<td>Yirm-Bun-Patrick KWAN</td>
<td>05/20/2011</td>
</tr>
<tr>
<td>Stefan-Wolfgang SCHMIDT</td>
<td>06/15/2011</td>
</tr>
<tr>
<td>Dirk Heinrich EHM</td>
<td>05/20/2011</td>
</tr>
<tr>
<td>Dieter KRAUS</td>
<td>05/23/2011</td>
</tr>
<tr>
<td>Stefan WIESNER</td>
<td>07/19/2011</td>
</tr>
<tr>
<td>Stefan KOEHLER</td>
<td>05/20/2011</td>
</tr>
<tr>
<td>Almut CZAP</td>
<td>06/08/2011</td>
</tr>
<tr>
<td>Hin Yiu Anthony CHUNG</td>
<td>05/20/2011</td>
</tr>
</tbody>
</table>

**RECEIVING PARTY DATA**

<table>
<thead>
<tr>
<th>Name:</th>
<th>Carl Zeiss SMT GmbH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Street Address:</td>
<td>Rudolf-Eber-Strasse 2</td>
</tr>
<tr>
<td>City:</td>
<td>Oberkochen</td>
</tr>
<tr>
<td>State/Country:</td>
<td>GERMANY</td>
</tr>
<tr>
<td>Postal Code:</td>
<td>73447</td>
</tr>
</tbody>
</table>

**PROPERTY NUMBERS Total: 1**

<table>
<thead>
<tr>
<th>Property Type</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Number</td>
<td>13088299</td>
</tr>
</tbody>
</table>

**CORRESPONDENCE DATA**

Fax Number: (202)293-7860  
*Correspondence will be sent via US Mail when the fax attempt is unsuccessful.*  
Phone: 2022937060  
Email: pmiller@sughrue.com  
Correspondent Name: George F. Lehnigk  
Address Line 1: 2100 Pennsylvania Ave NW  
Address Line 2: Suite 800

501628205  
PATENT  
REEL: 026759 FRAME: 0477
Assignment

Whereas, We, Wolfgang SINGER of Aalen, GERMANY; Yim-Bun-Patrick KWAN of Aalen, GERMANY; Stefan-Wolfgang SCHMIDT of Aalen, GERMANY; Dirk Heinrich EHM of Lauchheim, GERMANY; Dieter KRAUS of Oberkochen, GERMANY; Stefan WIESNER of Lauchheim, GERMANY; Stefan KOEHLER of Rainau, GERMANY; Almut CZAP of Aalen, GERMANY; and Hin Yiu Anthony CHUNG of Elchingen, GERMANY, respectively, hereinafter called assignors, have invented certain improvements in

EUV LITHOGRAPHY DEVICE AND METHOD FOR PROCESSING AN OPTICAL ELEMENT

and executed an application for Letters Patent of the United States of America therefor; and

Whereas, CARL ZEISS SMT GMBH of Rudolf-Eber-Strasse 2, 73447 Oberkochen, Germany, (assignee), desires to acquire the entire right, title, and interest in the application and invention, and to any United States patents to be obtained therefor;

Now therefore, for valuable consideration, receipt whereof is hereby acknowledged,

We, the above named assignors, hereby sell, assign and transfer to the above named assignee, its successors and assigns, the entire right, title and interest in the application and the invention disclosed therein for the United States of America, including all divisions, and continuations thereof, and all Letters Patent of the United States that may be granted thereon, and all reissues thereof, and all countries foreign thereto, including rights of priority under the International Convention of Paris (1883) as amended, including the right to claim priority under 35 U.S.C. §119, and we request the Director of the U.S. Patent and Trademark Office to issue any Letters Patent granted upon the invention set forth in the application to the assignee, its successors and assigns; and we hereby agree that the assignee may apply for foreign Letters Patent on the invention and we will execute without further consideration all papers deemed necessary by the assignee in connection with the United States and foreign applications when called upon to do so by the assignee.

We hereby authorize and request our attorneys SUGHRUE MION, PLLC of 2100 Pennsylvania Avenue, NW, Washington, DC 20037-3213 to insert here in parentheses (Application number 13/088,299 and Confirmation number 8131, filed April 15, 2011) the application number and filing date of said application when known.

Date: \( \text{May 20 2011} \) \\
\[ \text{s/Wolfgang SINGER} \]

Date: \( \text{20 May 2011} \) \\
\[ \text{s/Yim-Bun-Patrick KWAN} \]

Date: \\
\[ \text{s/Stefan-Wolfgang SCHMIDT} \]

(Legalization not required for recording but is prima facie evidence of execution under 35 U.S.C. §261)
Assignment

Whereas, We, Wolfgang SINGER of Aalen, GERMANY; Yim-Bun-Patrick KWAN of Aalen, GERMANY; Stefan-Wolfgang SCHMIDT of Aalen, GERMANY; Dirk Heinrich EHM of Lauchheim, GERMANY; Dieter KRAUS of Oberkochen, GERMANY; Stefan WIESNER of Lauchheim, GERMANY; Stefan KOEHLER of Rainau, GERMANY; Almut CZAP of Aalen, GERMANY; and Hin Yiu Anthony CHUNG of Elchingen, GERMANY, respectively, hereinafter called assigns, have invented certain improvements in

EUV LITHOGRAPHY DEVICE AND METHOD FOR PROCESSING AN OPTICAL ELEMENT

and executed an application for Letters Patent of the United States of America therefor; and

Whereas, CARL ZEISS SMT GMBH of Rudolf-Eber-Strasse 2, 73447 Oberkochen, Germany, (assignee), desires to acquire the entire right, title, and interest in the application and invention, and to any United States patents to be obtained therefor;

Now therefore, for valuable consideration, receipt whereof is hereby acknowledged,

We, the above named assigns, hereby sell, assign and transfer to the above named assignee, its successors and assigns, the entire right, title and interest in the application and the invention disclosed therein for the United States of America, including all divisions, and continuations thereof, and all Letters Patent of the United States that may be granted thereon, and all reissues thereof, and all countries foreign thereto, including rights of priority under the International Convention of Paris (1883) as amended, including the right to claim priority under 35 U.S.C. §119, and we request the Director of the U.S. Patent and Trademark Office to issue any Letters Patent granted upon the invention set forth in the application to the assignee, its successors and assigns; and we hereby agree that the assignee may apply for foreign Letters Patent on the invention and we will execute without further consideration all papers deemed necessary by the assignee in connection with the United States and foreign applications when called upon to do so by the assignee.

We hereby authorize and request our attorneys SUGHRUE MION, PLLC of 2100 Pennsylvania Avenue, NW, Washington, DC 20037-3213 to insert here in parentheses (Application number 13/088,299 and Confirmation number 8131, filed April 15, 2011) the application number and filing date of said application when known.

Date: ________________

s/Wolfgang SINGER

Date: ________________

s/Yim-Bun-Patrick KWAN

Date: ________________

s/Stefan-Wolfgang SCHMIDT

(Legalization not required for recording but is prima facie evidence of execution under 35 U.S.C. §261)
Assignment

Whereas, We, Wolfgang SINGER of Aalen, GERMANY; Yim-Bun-Patrick KWAN of Aalen, GERMANY; Stefan-Wolfgang SCHMIDT of Aalen, GERMANY; Dirk Heinrich EHM of Lauchheim, GERMANY; Dieter KRAUS of Oberkochen, GERMANY; Stefan WIESNER of Lauchheim, GERMANY; Stefan KOEHLER of Rainau, GERMANY; Almut CZAP of Aalen, GERMANY; and Hin Yu Anthony CHUNG of Elchingen, GERMANY, respectively, hereinafter called assignors, have invented certain improvements in EUV LITHOGRAPHY DEVICE AND METHOD FOR PROCESSING AN OPTICAL ELEMENT and executed an application for Letters Patent of the United States of America therefor; and

Whereas, CARL ZEISS SMT GMBH of Rudolf-Eber-Strasse 2, 73447 Oberkochen, Germany, (assignee), desires to acquire the entire right, title, and interest in the application and invention, and to any United States patents to be obtained therefor;

Now therefore, for valuable consideration, receipt whereof is hereby acknowledged,

We, the above named assignors, hereby sell, assign and transfer to the above named assignee, its successors and assigns, the entire right, title and interest in the application and the invention disclosed therein for the United States of America, including all divisions, and continuations thereof, and all Letters Patent of the United States that may be granted thereon, and all reissues thereof, and all countries foreign thereto, including rights of priority under the International Convention of Paris (1883) as amended, including the right to claim priority under 35 U.S.C. §119, and we request the Director of the U.S. Patent and Trademark Office to issue any Letters Patent granted upon the invention set forth in the application to the assignee, its successors and assigns; and we hereby agree that the assignee may apply for foreign Letters Patent on the invention and we will execute without further consideration all papers deemed necessary by the assignee in connection with the United States and foreign applications when called upon to do so by the assignee.

We hereby authorize and request our attorneys SUGHRUE MION, PLLC of 2100 Pennsylvania Avenue, NW, Washington, DC 20037-3213 to insert here in parentheses (Application number 13/088,299 and Confirmation number 8131, filed April 15, 2011) the application number and filing date of said application when known.

Date: [Signature]

s/Dirk Heinrich EHM

Date:

s/Dieter KRAUS

Date: [Signature]

s/ Stefan WIESNER

(Legalization not required for recording but is prima facie evidence of execution under 35 U.S.C. §261)
Assignment

Whereas, We, Wolfgang SINGER of Aalen, GERMANY; Yim-Bun-Patrick KWAN of Aalen, GERMANY; Stefan-Wolfgang SCHMIDT of Aalen, GERMANY; Dirk Heinrich EHM of Lauchheim, GERMANY; Dieter KRAUS of Oberkochen, GERMANY; Stefan WIESNER of Lauchheim, GERMANY; Stefan KOEHLER of Rainau, GERMANY; Almut CZAP of Aalen, GERMANY; and Hin Yiu Anthony CHUNG of Elchingen, GERMANY, respectively, hereinafter called assignors, have invented certain improvements in

EUV LITHOGRAPHY DEVICE AND METHOD FOR PROCESSING AN OPTICAL ELEMENT

and executed an application for Letters Patent of the United States of America therefor; and

Whereas, CARL ZEISS SMT GMBH of Rudolf-Eber-Strasse 2, 73447 Oberkochen, Germany, (assignee), desires to acquire the entire right, title, and interest in the application and invention, and to any United States patents to be obtained therefor;

Now therefore, for valuable consideration, receipt whereof is hereby acknowledged,

We, the above named assignors, hereby sell, assign and transfer to the above named assignee, its successors and assigns, the entire right, title and interest in the application and the invention disclosed therein for the United States of America, including all divisions, and continuations thereof, and all Letters Patent of the United States that may be granted thereon, and all reissues thereof, and all countries foreign thereto, including rights of priority under the International Convention of Paris (1883) as amended, including the right to claim priority under 35 U.S.C. §119, and we request the Director of the U.S. Patent and Trademark Office to issue any Letters Patent granted upon the invention set forth in the application to the assignee, its successors and assigns; and we hereby agree that the assignee may apply for foreign Letters Patent on the invention and we will execute without further consideration all papers deemed necessary by the assignee in connection with the United States and foreign applications when called upon to do so by the assignee.

We hereby authorize and request our attorneys SUGHRUE MION, PLLC of 2100 Pennsylvania Avenue, NW, Washington, DC 20037-3213 to insert here in parentheses (Application number 13/088,299 and Confirmation number 8131, filed April 15, 2011) the application number and filing date of said application when known.

Date: ________________________

s/Dirk Heinrich EHM

Date: ________________________

s/Dieter KRAUS

Date: ________________________

s/Stefan WIESNER

(Legalization not required for recording but is prima facie evidence of execution under 35 U.S.C. §261)
Assignment

Whereas, We, Wolfgang SINGER of Aalen, GERMANY; Yim-Bun-Patrick KWAN of Aalen, GERMANY; Stefan-Wolfgang SCHMIDT of Aalen, GERMANY; Dirk Heinrich EHM of Lauchheim, GERMANY; Dieter KRAUS of Oberkochen, GERMANY; Stefan WIESNER of Lauchheim, GERMANY; Stefan KOEHLER of Rainau, GERMANY; Almut CZAP of Aalen, GERMANY; and Hin Yu Anthony CHUNG of Echingen, GERMANY, respectively, hereinafter called assignors, have invented certain improvements in

EUV LITHOGRAPHY DEVICE AND METHOD FOR PROCESSING AN OPTICAL ELEMENT

and executed an application for Letters Patent of the United States of America therefor; and

Whereas, CARL ZEISS SMT GMBH of Rudolf-Eber-Strasse 2, 73447 Oberkochen, Germany, (assignee), desires to acquire the entire right, title, and interest in the application and invention, and to any United States patents to be obtained therefor;

Now therefore, for valuable consideration, receipt whereof is hereby acknowledged,

We, the above named assignors, hereby sell, assign and transfer to the above named assignee, its successors and assigns, the entire right, title and interest in the application and the invention disclosed therein for the United States of America, including all divisions, and continuations thereof, and all Letters Patent of the United States that may be granted thereon, and all reissues thereof, and all countries foreign thereto, including rights of priority under the International Convention of Paris (1883) as amended, including the right to claim priority under 35 U.S.C. §119, and we request the Director of the U.S. Patent and Trademark Office to issue any Letters Patent granted upon the invention set forth in the application to the assignee, its successors and assigns; and we hereby agree that the assignee may apply for foreign Letters Patent on the invention and we will execute without further consideration all papers deemed necessary by the assignee in connection with the United States and foreign applications when called upon to do so by the assignee.

We hereby authorize and request our attorneys SUGHRUE MION, PLLC of 2100 Pennsylvania Avenue, NW, Washington, DC 20037-3213 to insert here in parentheses (Application number 13/088,299 and Confirmation number 8131, filed April 15, 2011) the application number and filing date of said application when known.

Date: 05/20/2017
s/Stefan KOEHLER

Date: 06/08/2017
s/Almut CZAP

Date: 05/20/2011
s/Hin-Yiu Anthony CHUNG

(Legalization not required for recording but is prima facie evidence of execution under 35 U.S.C. §261)