

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT5968832

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
MIN GYU SUNG	01/14/2019
SONY VARGHESE	01/18/2019
ANTHONY RENAU	02/20/2019
MORGAN EVANS	02/19/2019
JOSEPH C. OLSON	02/21/2019
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	APPLIED MATERIALS, INC.
<b>Street Address:</b>	3050 BOWERS AVENUE
<b>City:</b>	SANTA CLARA
<b>State/Country:</b>	CALIFORNIA
<b>Postal Code:</b>	95054
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
Application Number:	16793683
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>	
<b>Phone:</b>	978-282-2000
<b>Email:</b>	Scott_Faber@amat.com, ncadmin@kdbfirm.com
<b>Correspondent Name:</b>	VARIAN SEMICONDUCTOR EQUIPMENT ASSOCIATE
<b>Address Line 1:</b>	35 DORY ROAD
<b>Address Line 4:</b>	GLOUCESTER, MASSACHUSETTS 01930-2297
<b>ATTORNEY DOCKET NUMBER:</b>	44016072D
<b>NAME OF SUBMITTER:</b>	JULIANNE HOLLAND
<b>SIGNATURE:</b>	/Julianne Holland/
<b>DATE SIGNED:</b>	02/18/2020
<b>Total Attachments: 9</b>	
source=44016072_Assignment#page1.tif	

source=44016072\_Assignment#page2.tif  
source=44016072\_Assignment#page3.tif  
source=44016072\_Assignment#page4.tif  
source=44016072\_Assignment#page5.tif  
source=44016072\_Assignment#page6.tif  
source=44016072\_Assignment#page7.tif  
source=44016072\_Assignment#page8.tif  
source=44016072\_Assignment#page9.tif

ASSIGNMENT

WHEREAS, the undersigned, to wit:

Min Gyu Sung  
Sony Varghese  
Anthony Renau  
Morgan Evans  
Joseph C. Olson

(Hereinafter collectively ASSIGNOR), have/has made a certain new and useful invention as set forth in an application for United States Letters Patent, entitled:

GATE ALL AROUND DEVICE AND METHOD OF FORMATION USING ANGLED IONS

(X only one):

- (A) ☐ which was executed concurrently herewith and is being filed herewith in the United States Patent and Trademark Office;
- (B) ☐ which was executed on \_\_\_\_\_, 20\_\_\_\_, and is being filed herewith in the United States Patent and Trademark Office;
- (C) ☒ which was filed as US Patent Application No. 16/207,932, filed on December 3, 2018

AND WHEREAS, Applied Materials, Inc., (hereinafter ASSIGNEE), a corporation organized and existing under the laws of the state of Delaware, and having its principal place of business at 3050 Bowers Avenue, Santa Clara, California, 95054, is desirous of acquiring the entire right, title, and interest in and to said invention and any and all patents that may be obtained therefore, and in and to said application and any and all patents that may issue therefrom;

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, ASSIGNOR does hereby sell, assign, transfer, and set over unto said ASSIGNEE, its successors, assigns, and legal representatives, all right, title, and interest in and to said invention throughout the world, and any and all patents of the United States and foreign countries that may be obtained therefor, and in and to said application, including any and all continuations, continuations-in-part, divisionals, reissues, re-examinations, substitutions, and extensions thereof, and any and all patents of the United States and foreign countries that may issue therefrom, such right, title, and interest including the right to file applications and obtain patents, utility models, industrial models and designs for said invention in the name of said ASSIGNEE, its successors, assigns, and legal representatives throughout the world, including all rights of priority, all rights to publish cautionary notices reserving ownership of said invention, and all rights to register said invention in appropriate registries;

ASSIGNOR also does hereby covenant that it has the full right to convey the entire right, title, and interest herein assigned, and that it has not and will not execute any agreement in conflict herewith;

ASSIGNOR also does hereby authorize and request the Commissioner of Patents and Trademarks to issue any and all Letters Patent of the United States on said invention or resulting

from said application, including any continuations, continuations-in-part, divisions, reissues, re-examinations, substitutions, and extensions thereof, to said ASSIGNEE, its successors, assigns, and legal representatives as the ASSIGNEE of the entire right, title, and interest herein assigned;

ASSIGNOR also does hereby agree to, at any time, upon request, without further or additional consideration, but at the expense of said ASSIGNEE, its successors, assigns, or legal representatives, execute and deliver any and all papers, make all rightful oaths, and do all lawful acts that may be necessary or desirable to perfect the entire right, title, and interest here assigned in said ASSIGNEE, its successors, assigns, and legal representatives, and generally do everything possible to vest the entire right, title and interest herein assigned in said ASSIGNEE, its successors, assigns, and legal representatives;

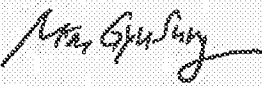
ASSIGNOR also does hereby agree to, at any time, upon request, without further or additional consideration, but at the expense of said ASSIGNEE, its successors, assigns, or legal representatives, execute and deliver any and all papers, make all rightful oaths, and do all lawful acts that may be necessary or desirable to make application for and obtain any and all continuations, continuations-in-part, divisions, reissues, re-examinations, substitutions, and extensions of said application, or any application on said invention, or any patent issuing therefor or therefrom;

ASSIGNOR also does hereby agree to, at any time, upon request, without further or additional consideration but at the expense of said ASSIGNEE, its successors, assigns, and legal representatives, communicate to said ASSIGNEE, its successors, assigns, and legal representatives, any known facts relating to said invention or said application or any patent issuing therefor or therefrom, and testify as to the same in any interference or other litigation proceeding when requested to do so, and aid said ASSIGNEE, its successors, assigns, and legal representatives, in obtaining and enforcing property protection for said invention in all countries;

ASSIGNOR also does hereby grant the Legal Department of Varian Semiconductor Equipment Associates, Inc., at the address shown above, the power to insert on this assignment any further information, including, but not limited to application number(s) and filing date(s), which may be necessary or desirable in order to comply with any rule or request of the United States Patent and Trademark Office for the purposes of recording this document.

ASSIGNOR also does now hereby execute this document on the date(s) indicated below:

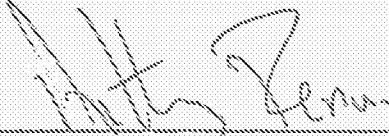
1/14/2019  
Date

  
Name: Min Gyu Sung

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name: Sony Varghese

2/22/19  
Date

  
Name: Anthony Renau

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name: Morgan Evans

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name: Joseph C. Olson

ASSIGNMENT

WHEREAS, the undersigned, to wit:

Min Gyu Sung  
Sony Varghese  
Anthony Renau  
Morgan Evans  
Joseph C. Olson

(Hereinafter collectively ASSIGNOR), have/has made a certain new and useful invention as set forth in an application for United States Letters Patent, entitled:

GATE ALL AROUND DEVICE AND METHOD OF FORMATION USING ANGLED IONS

(X only one):

- (A) ☐ which was executed concurrently herewith and is being filed herewith in the United States Patent and Trademark Office;
- (B) ☐ which was executed on \_\_\_\_\_, 20\_\_\_\_, and is being filed herewith in the United States Patent and Trademark Office;
- (C) ☒ which was filed as US Patent Application No. 16/207,932, filed on December 3, 2018

AND WHEREAS, Applied Materials, Inc., (hereinafter ASSIGNEE), a corporation organized and existing under the laws of the state of Delaware, and having its principal place of business at 3050 Bowers Avenue, Santa Clara, California, 95054, is desirous of acquiring the entire right, title, and interest in and to said invention and any and all patents that may be obtained therefore, and in and to said application and any and all patents that may issue therefrom;

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, ASSIGNOR does hereby sell, assign, transfer, and set over unto said ASSIGNEE, its successors, assigns, and legal representatives, all right, title, and interest in and to said invention throughout the world, and any and all patents of the United States and foreign countries that may be obtained therefor, and in and to said application, including any and all continuations, continuations-in-part, divisionals, reissues, re-examinations, substitutions, and extensions thereof, and any and all patents of the United States and foreign countries that may issue therefrom, such right, title, and interest including the right to file applications and obtain patents, utility models, industrial models and designs for said invention in the name of said ASSIGNEE, its successors, assigns, and legal representatives throughout the world, including all rights of priority, all rights to publish cautionary notices reserving ownership of said invention, and all rights to register said invention in appropriate registries;

ASSIGNOR also does hereby covenant that it has the full right to convey the entire right, title, and interest herein assigned, and that it has not and will not execute any agreement in conflict herewith;

ASSIGNOR also does hereby authorize and request the Commissioner of Patents and Trademarks to issue any and all Letters Patent of the United States on said invention or resulting

from said application, including any continuations, continuations-in-part, divisions, reissues, re-examinations, substitutions, and extensions thereof, to said ASSIGNEE, its successors, assigns, and legal representatives as the ASSIGNEE of the entire right, title, and interest herein assigned;

ASSIGNOR also does hereby agree to, at any time, upon request, without further or additional consideration, but at the expense of said ASSIGNEE, its successors, assigns, or legal representatives, execute and deliver any and all papers, make all rightful oaths, and do all lawful acts that may be necessary or desirable to perfect the entire right, title, and interest here assigned in said ASSIGNEE, its successors, assigns, and legal representatives, and generally do everything possible to vest the entire right, title and interest herein assigned in said ASSIGNEE, its successors, assigns, and legal representatives;

ASSIGNOR also does hereby agree to, at any time, upon request, without further or additional consideration, but at the expense of said ASSIGNEE, its successors, assigns, or legal representatives, execute and deliver any and all papers, make all rightful oaths, and do all lawful acts that may be necessary or desirable to make application for and obtain any and all continuations, continuations-in-part, divisions, reissues, re-examinations, substitutions, and extensions of said application, or any application on said invention, or any patent issuing therefor or therefrom;

ASSIGNOR also does hereby agree to, at any time, upon request, without further or additional consideration but at the expense of said ASSIGNEE, its successors, assigns, and legal representatives, communicate to said ASSIGNEE, its successors, assigns, and legal representatives, any known facts relating to said invention or said application or any patent issuing therefor or therefrom, and testify as to the same in any interference or other litigation proceeding when requested to do so, and aid said ASSIGNEE, its successors, assigns, and legal representatives, in obtaining and enforcing property protection for said invention in all countries;

ASSIGNOR also does hereby grant the Legal Department of Varian Semiconductor Equipment Associates, Inc., at the address shown above, the power to insert on this assignment any further information, including, but not limited to application number(s) and filing date(s), which may be necessary or desirable in order to comply with any rule or request of the United States Patent and Trademark Office for the purposes of recording this document.

ASSIGNOR also does now hereby execute this document on the date(s) indicated below:

\_\_\_\_\_  
Date

1/18/2019  
Date

\_\_\_\_\_  
Name: Min Gyu Sung

  
\_\_\_\_\_  
Name: Sony Varghese

\_\_\_\_\_  
Date

2/19/19  
Date

\_\_\_\_\_  
Name: Anthony Renau

  
Name: Morgan Evans

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name: Joseph C. Olson



ASSIGNMENT

WHEREAS, the undersigned, to wit:

Min Gyu Sung  
Sony Varghese  
Anthony Renau  
Morgan Evans  
Joseph C. Olson

(Hereinafter collectively ASSIGNOR), have/has made a certain new and useful invention as set forth in an application for United States Letters Patent, entitled:

GATE ALL AROUND DEVICE AND METHOD OF FORMATION USING ANGLED IONS

(X only one):

- (A) ☐ which was executed concurrently herewith and is being filed herewith in the United States Patent and Trademark Office;
- (B) ☐ which was executed on \_\_\_\_\_, 20\_\_\_\_, and is being filed herewith in the United States Patent and Trademark Office;
- (C) ☒ which was filed as US Patent Application No. 16/207,932, filed on December 3, 2018

AND WHEREAS, Applied Materials, Inc., (hereinafter ASSIGNEE), a corporation organized and existing under the laws of the state of Delaware, and having its principal place of business at 3050 Bowers Avenue, Santa Clara, California, 95054, is desirous of acquiring the entire right, title, and interest in and to said invention and any and all patents that may be obtained therefore, and in and to said application and any and all patents that may issue therefrom;

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, ASSIGNOR does hereby sell, assign, transfer, and set over unto said ASSIGNEE, its successors, assigns, and legal representatives, all right, title, and interest in and to said invention throughout the world, and any and all patents of the United States and foreign countries that may be obtained therefor, and in and to said application, including any and all continuations, continuations-in-part, divisionals, reissues, re-examinations, substitutions, and extensions thereof, and any and all patents of the United States and foreign countries that may issue therefrom, such right, title, and interest including the right to file applications and obtain patents, utility models, industrial models and designs for said invention in the name of said ASSIGNEE, its successors, assigns, and legal representatives throughout the world, including all rights of priority, all rights to publish cautionary notices reserving ownership of said invention, and all rights to register said invention in appropriate registries;

ASSIGNOR also does hereby covenant that it has the full right to convey the entire right, title, and interest herein assigned, and that it has not and will not execute any agreement in conflict herewith;

ASSIGNOR also does hereby authorize and request the Commissioner of Patents and Trademarks to issue any and all Letters Patent of the United States on said invention or resulting

from said application, including any continuations, continuations-in-part, divisions, reissues, re-examinations, substitutions, and extensions thereof, to said ASSIGNEE, its successors, assigns, and legal representatives as the ASSIGNEE of the entire right, title, and interest herein assigned;

ASSIGNOR also does hereby agree to, at any time, upon request, without further or additional consideration, but at the expense of said ASSIGNEE, its successors, assigns, or legal representatives, execute and deliver any and all papers, make all rightful oaths, and do all lawful acts that may be necessary or desirable to perfect the entire right, title, and interest here assigned in said ASSIGNEE, its successors, assigns, and legal representatives, and generally do everything possible to vest the entire right, title and interest herein assigned in said ASSIGNEE, its successors, assigns, and legal representatives;

ASSIGNOR also does hereby agree to, at any time, upon request, without further or additional consideration, but at the expense of said ASSIGNEE, its successors, assigns, or legal representatives, execute and deliver any and all papers, make all rightful oaths, and do all lawful acts that may be necessary or desirable to make application for and obtain any and all continuations, continuations-in-part, divisions, reissues, re-examinations, substitutions, and extensions of said application, or any application on said invention, or any patent issuing therefor or therefrom;

ASSIGNOR also does hereby agree to, at any time, upon request, without further or additional consideration but at the expense of said ASSIGNEE, its successors, assigns, and legal representatives, communicate to said ASSIGNEE, its successors, assigns, and legal representatives, any known facts relating to said invention or said application or any patent issuing therefor or therefrom, and testify as to the same in any interference or other litigation proceeding when requested to do so, and aid said ASSIGNEE, its successors, assigns, and legal representatives, in obtaining and enforcing property protection for said invention in all countries;

ASSIGNOR also does hereby grant the Legal Department of Varian Semiconductor Equipment Associates, Inc., at the address shown above, the power to insert on this assignment any further information, including, but not limited to application number(s) and filing date(s), which may be necessary or desirable in order to comply with any rule or request of the United States Patent and Trademark Office for the purposes of recording this document.

ASSIGNOR also does now hereby execute this document on the date(s) indicated below:

\_\_\_\_\_  
Date

1/18/2019

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name: Min Gyu Sung



\_\_\_\_\_  
Name: Sony Varghese

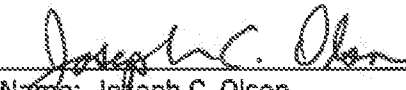
\_\_\_\_\_  
Date

\_\_\_\_\_  
Name: Anthony Renau

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name: Morgan Evans

2/21/2019  
Date

  
\_\_\_\_\_  
Name: Joseph C. Olson