504528344 08/31/2017

PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
SUSMIT SINGHA ROY	08/23/2017
YIHONG CHEN	08/23/2017
KELVIN CHAN	08/23/2017
ABHIJIT BASU MALLICK	08/23/2017
SRINIVAS GANDIKOTA	08/23/2017

RECEIVING PARTY DATA

Name:	APPLIED MATERIALS, INC.	
Street Address:	3050 BOWERS AVENUE	
City:	SANTA CLARA	
State/Country:	CALIFORNIA	
Postal Code:	95054	

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	15621120

CORRESPONDENCE DATA

Fax Number:

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.

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NAME OF SUBMITTER: JEFFREY I. BLANKMAN

SIGNATURE: /Jeffrey I. Blankman, Reg. #57826/

DATE SIGNED: 08/31/2017

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PATENT REEL: 043733 FRAME: 0221

ASSIGNMENT FOR APPLICATION FOR PATENT

WHEREAS:

Names and Addresses of Inventors

1)	Susmit Singha Roy 426 Escuela Avenue Apt. 16 Mountain View, CA, 94040 United States of America
2)	Yihong Chen 1192 Fynes Ct. San Jose, CA, 95131 United States of America
3)	Kelvin Chan 1740 Blakesley Dr San Ramon, CA, 94582 United States of America

4)	Abhijit Basu Mallick 2637 Alma Street
	Palo Alto, CA, 94306
	United States of America
	Srinivas Gandikota
	2727 Monroe Street
	Santa Clara, CA, 95051
	United States of America

(hereinafter referred to as Assignors), have invented a certain invention entitled:

"Oxidative Volumetric Expansion Of Metals And Metal Containing Compounds For Metal Oxide Gapfill And Conformal Applications"

for which application for Letters Patent in the United States was filed on June 13, 2017.

under Serial No. 15621120, executed on even date herewith; and

WHEREAS, Applied Materials, Inc., a corporation of the State of Delaware, having a place of business at 3050 Bowers Avenue, Santa Clara, CA, 95054 (hereinafter referred to as Assignee), is desirous of acquiring the entire right, title and interest in and to said application (hereinafter referred to as the Application), and the invention disclosed therein (hereinafter referred to as the Invention), and in and to all embodiments of the Invention, heretofore conceived, made or discovered by said Assignors, and in and to any and all patents, inventor's certificates and other forms of protection (hereinafter referred to as the Patents) thereon granted in any and all countries and groups of countries.

NOW, THEREFORE, in consideration of good and valuable consideration acknowledged by said. Assignors to have been received in full from said Assignee:

Said Assignors hereby self, assign, transfer and convey to Assignee the full and exclusive right, title and interest (a) in and to said Application and said Invention; (b) in and to all rights to apply for patents on said Invention in any and all countries pursuant to the International Convention for the Protection of Industrial Property or otherwise; (c) in and to any and all Applications filed and any and all Patents granted on said Invention in any and all countries and groups of countries, including each and every Application filed and each and every Patent granted on any application which is a division, substitution, or continuation of said Application; and (d) in and to each and every reissue or extension of

any of said Patents.

- 2. Said Assignors hereby covenant and agree to cooperate with said Assignee to enable said Assignee to enjoy to the fullest extent the right, title and interest to said Invention herein conveyed in any and all countries and groups of countries. Such cooperation by said Assignors shall include prompt production of pertinent facts and documents, giving testimony, execution of petitions, oaths, specifications, declarations or other papers; and other assistance all to the extent deemed necessary or desirable by said Assignee (a) for perfecting in said Assignee the right, title and interest herein conveyed; (b) for prosecuting any of said applications; (c) for filing and prosecuting substitute, divisional, continuing or additional applications covering said Invention; (d) for filing and prosecuting applications for reissuance of any of said Patents; (e) for interference or other priority proceedings involving said Invention; and (f) for legal proceedings involving said Invention and any application therefore and any Patents granted thereon, including without limitation opposition proceedings, cancellation proceedings, priority contests, public use proceedings, infringement actions and court actions; provided, however, that the expense incurred by said Assignors in providing such cooperation shall be paid for by said Assignee.
- The term and covenants of this agreement shall inure to the benefit of said Assignee, its successors, assigns and other legal representatives, and shall be binding upon said Assignors, their respective heirs, legal representatives and assigns.
- 4. Said Assignors hereby warrant and represent that they have not entered and will not enter into any assignment, contract, or understanding in conflict herewith.

IN WITNESS WHEREOF, the said Assignors have executed and delivered this instrument to said Assignee on the dates indicated below.

1) 23 Fd August 2017	Unventor) Susmit Singha Roy
2) <u>Ay 23 vd</u> 2017	(INVENTOR) Yihong Chen
3) Aug 23 2017	(INVENTOR) Kelvin Chan
4)	(INVENTOR) Abhijii Basu Mallick
5) Aug 23 2017	(INVENTOR) Srinivas Gandikota