

**ASSIGNMENT RECORDATION COVER SHEET
-PATENTS ONLY-**

To: Honorable Commissioner of Patents and Trademarks:

Please record the attached original document(s) or copy thereof.

1. Name of conveying party(ies)
a) Wen Wu c) Girish Dixit
b) Chentao Yu d) Kenneth Jow
2. Name and address of receiving party(ies):
a) Name: Novellus Systems, Inc.
Address: 3970 North First Street, San Jose, CA 95134

3. Nature of conveyance
☒ Assignment ☐ Merger
☐ Security Agreement ☐ Change of Name
☐ Other ☐ License Agreement

Execution Date:

- a) 2/4/2008 c) 2/4/2008
b) 2/4/2008 d) 2/12/2008
4. Application Number(s) or Patent Number(s): 12/002,780

The title of the (new) application is:

COMPOSITIONALLY GRADED TITANIUM NITRIDE FILM FOR DIFFUSION BARRIER APPLICATIONS

5. Please send all correspondence concerning this (these) documents to:

**Beyer Weaver LLP
P.O. Box 70250
Oakland, CA 94612-0250
Customer Number: 022434**

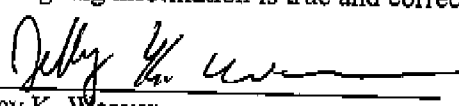
6. Total number of applications and patents involved: 1

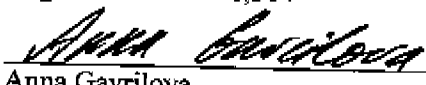
7. Total fee (37 CFR 3.41): \$40.00

- ☐ Enclosed
☒ Any additional fees are authorized to be charged to Deposit Account No. 500388
(Order No. NOVLP249)

8. To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

Date: February 20, 2008


Jeffrey K. Weaver
Registration No. 31,314


Anna Gavrilova
Registration No. 58,181

Attorney Docket No. NOVLP249

(Revised 12/01)
PATENT

700361346

REEL: 020551 FRAME: 0643

CH \$40.00 500388 12002780

ASSIGNMENT OF PATENT APPLICATION

Whereas I, an undersigned inventor, have invented certain new and useful improvements as set forth in the patent application entitled:

COMPOSITIONALLY GRADED TITANIUM NITRIDE FILM FOR DIFFUSION BARRIER APPLICATIONS

(Atty. Docket No. NOVLP249/NVLS-3371), (check one)

- ☐ for which I have executed a U.S. patent application on even date herewith. (Accompanying)
☒ which bears U.S. application No. 12/002,780. (Not accompanying)
☐ which is a U.S. provisional application. (Accompanying)

For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, I, an undersigned inventor, hereby:

- 1) Sell, assign and transfer to Novellus Systems, Inc., a California corporation having a place of business at 3970 North First Street, San Jose, California 95134 ("ASSIGNEE"), the entire right, title and interest in any and all improvements and inventions disclosed in, applications based upon, and patents granted upon (including foreign patents and the right to claim priority), the above-referenced application.
- 2) Authorize and request the Commissioner of Patents to issue any and all United States Patents resulting from said application or any division, continuation, substitute, renewal, re-examination or reissue thereof to the ASSIGNEE.
- 3) Agree to execute all papers and documents and, entirely at the ASSIGNEE's expense, perform any acts which are reasonably necessary in connection with the prosecution of said application, as well as any derivative applications thereof, foreign applications based thereon, and/or the enforcement of patents resulting from such applications.
- 4) Agree that the terms, covenants and conditions of this assignment shall inure to the benefit of the ASSIGNEE, its successors, assigns and other legal representatives, and shall be binding upon the inventor, as well as the inventor's heirs, legal representatives and assigns.
- 5) Warrant and represent that I have not entered and will not enter into any assignment, contract, or understanding that conflicts with this assignment.
- 6) Authorize and request my attorney/agent to insert above the application No. in order to assist with recordal of this assignment.

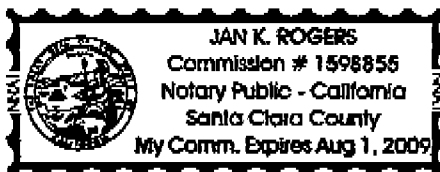
Signed on the date indicated beside my signature.

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of California

County of SANTA CLARAOn FEBRUARY 4, 2008 before me, JAN K. ROGERS, NOTARY PUBLICpersonally appeared GIRISH DIXIT

Name(s) of Signer(s)



Place Notary Seal Above

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature

Jan K. Rogers

Signature of Notary Public

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: ASSIGNMENT OF PATENT APPLICATIONDocument Date: NONE Number of Pages: TWO

Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: GIRISH DIXIT

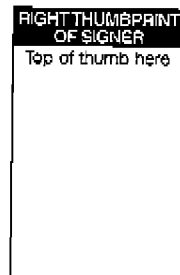
- ☒ Individual
☐ Corporate Officer — Title(s): _____
☐ Partner — ☐ Limited ☐ General
☐ Attorney in Fact
☐ Trustee
☐ Guardian or Conservator
☐ Other: _____

Signer Is Representing: SELF

Signer's Name: _____

- ☐ Individual
☐ Corporate Officer — Title(s): _____
☐ Partner — ☐ Limited ☐ General
☐ Attorney in Fact
☐ Trustee
☐ Guardian or Conservator
☐ Other: _____

Signer Is Representing: _____



CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of California

County of SANTA CLARAOn FEBRUARY 4, 2008 before me,JAN K. ROGERS, NOTARY PUBLIC

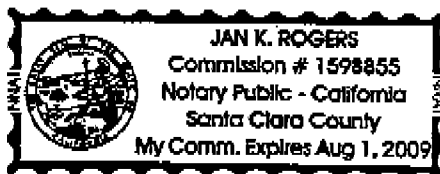
Here Insert Name and Title of the Officer

personally appeared

WEN WU AND CHENTAO YU

Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.



I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Place Notary Seal Above

Signature

Jan K. Rogers

Signature of Notary Public

OPTIONAL

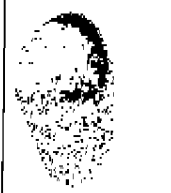
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Description of Attached DocumentTitle or Type of Document: ASSIGNMENT OF PATENT APPLICATIONDocument Date: NONENumber of Pages: TWO

Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)Signer's Name: WEN WU

- ☒ Individual
☐ Corporate Officer — Title(s): _____
☐ Partner — ☐ Limited ☐ General
☐ Attorney in Fact
☐ Trustee
☐ Guardian or Conservator
☐ Other: _____

Signer Is Representing: SELFRIGHT THUMBPRINT
OF SIGNER
Top of thumb hereSigner's Name: CHENTAO YU

- ☒ Individual
☐ Corporate Officer — Title(s): _____
☐ Partner — ☐ Limited ☐ General
☐ Attorney in Fact
☐ Trustee
☐ Guardian or Conservator
☐ Other: _____

Signer Is Representing: SELFRIGHT THUMBPRINT
OF SIGNER
Top of thumb here

1. Inventor Signature: *Wen Wu*Date: ~~Jan. 21, 2008~~ 2/4/2008

State of California)

ss.

County of SANTA CLARA)

On this 4th day of FEBRUARY, in the year 2008, before me, IAN K. ROGERS, Notary Public, personally appeared Wen Wu, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument, and acknowledged to me that he/she executed the same in his/her authorized capacity(ies), and that by his/her signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

Notary Signature _____

(SEAL)

2. Inventor Signature: *Chentao Yu*Date: ~~2-1-08~~ 2-4-2008

State of California)

ss.

County of _____)

On this _____ day of _____, in the year 2008, before me, _____, Notary Public personally appeared Chentao Yu, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument, and acknowledged to me that he/she executed the same in his/her authorized capacity(ies), and that by his/her signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

Notary Signature _____

(SEAL)

3. Inventor Signature: *Girish Dixit*Date: 2/4/08

State of California)

ss.

County of _____)

On this _____ day of _____, in the year 2008, before me, _____, Notary Public, personally appeared Girish Dixit, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument, and acknowledged to me that he/she executed the same in his/her authorized capacity(ies), and that by his/her signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

Notary Signature _____

(SEAL)

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of California

County of SANTA CLARAOn FEBRUARY 12, 2008 before me, JAN K. ROGERS, NOTARY PUBLIC

Date

Here Insert Name and Title of the Officer

personally appeared KENNETH JON

Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/~~she~~ they executed the same in his/~~her~~ their authorized capacity(ies), and that by his/~~her~~ their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.



Place Notary Seal Above

Signature JAN K. ROGERS

Signature of Notary Public

OPTIONAL

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Description of Attached Document

Title or Type of Document: ASSIGNMENT OF PATENT APPLICATIONDocument Date: NONE Number of Pages: THREE

Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: KENNETH JON

- ☒ Individual
☐ Corporate Officer — Title(s): _____
☐ Partner — ☐ Limited ☐ General
☐ Attorney in Fact
☐ Trustee
☐ Guardian or Conservator
☐ Other: _____

Signer Is Representing: SELF

RIGHT THUMBPRINT
OF SIGNER
Top of thumb here



Signer's Name: _____

- ☐ Individual
☐ Corporate Officer — Title(s): _____
☐ Partner — ☐ Limited ☐ General
☐ Attorney in Fact
☐ Trustee
☐ Guardian or Conservator
☐ Other: _____

Signer Is Representing: _____

RIGHT THUMBPRINT
OF SIGNER
Top of thumb here

4. Inventor Signature: _____

Kenneth Jow

Date: 2/12/08

State of California)

County of SANTA)

ss.

On this _____ day of _____, in the year 2008, before me, _____, Notary Public, personally appeared Kenneth Jow, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument, and acknowledged to me that he/she executed the same in his/her authorized capacity(ies), and that by his/her signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

Notary Signature _____

(SEAL)

SEE ATTACHED