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Atty Ref/Docket No.: 2413.117US1

Patent and Trademark Office

To the Director of the U.S. Patent and Trademark Office: Please record the attached original documents or copy thereof.

1. Name of conveying party(ies):

Vincent Wing-Ho Lee, Ioannis Kymissis

Additional name(s) of conveying party(ies) attached?

[ ] Yes [X] No

3. Nature of conveyance:

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[ ] Security Agreement [ ] Change of Name  
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Execution Date: April 22, 2010, April 21, 2010

2. Name and address of receiving party(ies):

Name: The Trustees of Columbia University in the City of New York

Street Address: 535 West 116th Street  
412 Low Memorial LibraryCity: New York State: New York Zip: 10027  
Country: United States of AmericaAdditional name(s) & address(es) attached? [ ] Yes  
[X] No

4. Application number(s) or patent number(s):

If this document is being filed together with a new application, the execution date of the application is:

A. Patent Application No.(s)

Serial No. 12/706,502, filed February 16, 2010

B. Patent No.(s)

Additional numbers attached? [ ] Yes [X] No

5. Name and address of party to whom correspondence concerning document should be mailed:

Name: Suneel Arora

Address:

Schwegman, Lundberg & Woessner, P.A.  
P.O. Box 2938  
Minneapolis, MN 55402--09386. Total number of applications and patents involved: 17. Total fee (37 CFR 3.41): \$ 40.00

[ ] Enclosed

[X] Authorized to be charged to deposit account  
19-0743

8. Please charge any additional fees or credit any over payments to our Deposit Account No.: 19-0743

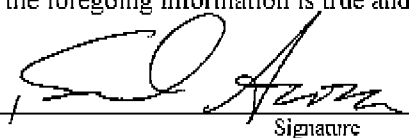
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9. Statement and signature.

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.

Suneel Arora/Reg. No. 42,267

Name of Person Signing



Signature

May 11, 2010

Date

Total number of pages including cover sheet: 5

Mail documents to be recorded with required cover sheet information to:

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Attorney Docket No. 2413.117US1  
Client Ref. No. M10-059/2413.117US1/JS/PV

### ASSIGNMENT

WHEREAS, We, Vincent Wing-Ho Lee, residing at 8 Victoria Way, Kendall Park, New Jersey 08824, and Ioannis Kymissis, residing at 526 W 113th Street #43, New York, New York 10025, made certain new and useful inventions and improvements which are described in an application for U.S. Letters Patent on February 16, 2010, which application was assigned U.S. patent application serial number 12/706,502, and is entitled DIRECT BANDGAP SUBSTRATES AND METHODS OF MAKING AND USING:

FOR GOOD AND VALUABLE CONSIDERATION, the receipt, sufficiency and adequacy of which are hereby acknowledged, the undersigned do hereby:

SELL, ASSIGN AND TRANSFER to The Trustees of Columbia University in the City of New York (the "Assignee"), a corporation of the State of New York, having a place of business at 535 West 116th Street, 412 Low Memorial Library, New York, New York 10027, the entire right, title and interest for the United States and all foreign countries in and to: any and all inventions and improvements which are disclosed in the identified application for U.S. Letters Patent, and which may be further identified below; such application and all divisional, continuing, substitute, renewal, reissue and all other applications for patent which have been or shall be filed in the United States (including all provisional and non-provisional applications), and in all foreign countries on any of such inventions and/or improvements (including any applications for utility models); all original and reissued patents which have been or shall be issued in the United States and all foreign countries on such inventions and/or improvements; and specifically including the right to file foreign applications under the provisions of any convention or treaty and to claim priority based on the identified application;

AUTHORIZE AND REQUEST that any attorney associated with U.S. PTO Customer No. 68836 may (directly or through his/her designee) delete, insert, or alter any information identifying this application, or any related application, below, after execution of this Assignment;

#### Additional Application Information

*U.S. Provisional Application Serial No. 60/964,935, filed on August 16, 2007.*

*U.S. Provisional Application Serial No. 61/230,960, filed on August 3, 2009.*

*PCT Application Serial No. PCT/US2008/009767, filed on August 15, 2008.*

AUTHORIZE AND REQUEST the issuing authority to issue any and all United States and foreign patents granted on such improvements to the Assignee;

## ASSIGNMENT

Client Ref No. M10-059/2413.117US1/JS/PV

Assignors: Vincent Wing-Ho Lee et al.

Title: DIRECT BANDGAP SUBSTRATES AND METHODS OF MAKING AND USING

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Docket No: 2413.117US1

Serial Number: 12/706,502

WARRANT AND COVENANT that no assignment, grant, mortgage, license or other agreement affecting the rights and/or property herein conveyed has been or will be made to others by the undersigned, and that the full right to convey the same as herein expressed is possessed by the undersigned;

COVENANT, that when requested and without compensation, but at the expense of the Assignee, in order to carry out in good faith the intent and purpose of this Assignment, the undersigned will (1) execute all provisional, non-provisional, divisional, continuing, substitute, renewal, reissue, and all other patent applications on any and all such improvements; (2) execute all rightful oaths, declarations, assignments, powers of attorney and other papers; (3) communicate to the Assignee all facts known to the undersigned relating to such improvements and the history thereof; (4) cooperate with the Assignee in any interference, reexamination, reissue, opposition, dispute, or litigation involving any of the applications or patents for such improvements; and (5) take such further actions as the Assignee shall reasonably consider necessary or desirable for vesting title to such improvements in the Assignee, or for securing, maintaining and enforcing proper patent protection for such improvements;

THIS AGREEMENT IS TO BE BINDING on the heirs, assigns, representatives and successors of the undersigned, and is to extend to the benefit of the successors, assigns and nominees of the Assignee.

AGREED as of the date of my signature below:

## ASSIGNMENT

Client Ref. No. M10-059/2413.117 U.S./PV

Assignors: Vincent Wing-Ho Lee

Title: DIRECT BANDGAP SUBSTITUTES AND METHODS OF MAKING AND USING

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Docket No: 2413.117US1

Serial Number: 12/708,502

IN TESTIMONY WHEREOF, I have hereunto set my hand this 22 day ofApril 2010

Vincent Wing-Ho Lee

STATE OF \_\_\_\_\_ )

)ss

COUNTY OF \_\_\_\_\_ )

On this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_ before me personally appeared Vincent Wing-Ho Lee, to me known and known to me to be the person described in and who executed the foregoing instrument, and he/she duly acknowledged to me that he/she executed the same for the uses and purposes therein set forth.

[SEAL]

\_\_\_\_\_  
Notary Public

## ASSIGNMENT

Client Ref. No. M10-059/2013.117US1/IS/PV

Assignors: Vincent Wing-Ho Lee et al.

Title: DIRECT BANDGAP SUBSTRATES AND METHODS OF MAKING AND USING

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DocId: No: 2413.117US1

Serial Number: 12/706,502

IN TESTIMONY WHEREOF, I have hereunto set my hand this \_\_\_\_ day of

21 APR, 2010.

Ioannis Kymissis



STATE OF \_\_\_\_\_

)ss

COUNTY OF \_\_\_\_\_

On this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, before me personally appeared Ioannis Kymissis, to me known and known to me to be the person described in and who executed the foregoing instrument, and he/she duly acknowledged to me that he/she executed the same for the uses and purposes therein set forth.

[SEAL]

\_\_\_\_\_  
Notary Public