

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT4478127

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| <b>SUBMISSION TYPE:</b>   | NEW ASSIGNMENT                        |
| <b>NATURE OF CONVEYANCE:</b>  | ASSIGNMENT                            |
| <b>CONVEYING PARTY DATA</b>   |                                       |
| <b>Name</b>   | <b>Execution Date</b>                 |
| PARTHIBAN SANTHANAM   | 06/23/2014                            |
| DODD JOSEPH GRAY  | 06/19/2014                            |
| RAJEEV JAGGA RAM  | 07/01/2014                            |
| <b>RECEIVING PARTY DATA</b>   |                                       |
| <b>Name:</b>  | MASSACHUSETTS INSTITUTE OF TECHNOLOGY |
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| <b>City:</b>  | CAMBRIDGE                             |
| <b>State/Country:</b>   | MASSACHUSETTS                         |
| <b>Postal Code:</b>   | 02139                                 |
| <b>PROPERTY NUMBERS Total: 1</b>  |                                       |
| <b>Property Type</b>  | <b>Number</b>                         |
| <b>Application Number:</b>  | 15632550                              |
| <b>CORRESPONDENCE DATA</b>  |                                       |
| <b>Fax Number:</b>  | (202)842-7899                         |
| <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>   | 2028427800                            |
| <b>Email:</b>   | llovato@cooley.com                    |
| <b>Correspondent Name:</b>  | COOLEY LLP                            |
| <b>Address Line 1:</b>  | 1299 PENNSYLVANIA AVENUE, NW          |
| <b>Address Line 2:</b>  | ATTN: PATENT GROUP                    |
| <b>Address Line 4:</b>  | WASHINGTON, D.C. 20004                |
| <b>ATTORNEY DOCKET NUMBER:</b>  | MITX-5786/03US                        |
| <b>NAME OF SUBMITTER:</b>   | CHRISTOPHER MAX COLICE                |
| <b>SIGNATURE:</b>   | /Christopher Max Colice/              |
| <b>DATE SIGNED:</b>   | 06/26/2017                            |
| <b>Total Attachments: 6</b>   |                                       |
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## ASSIGNMENT

Parthiban Santhanam residing at 235 Albany Street, #5074, Cambridge, MA 02139, Dodd Joseph Gray residing at 803 ½ Wisconsin Street, San Francisco, CA 94107, and Rajeev Jagga Ram residing at 63 Chester Street, Arlington, MA 02476 (each referred to as "Assignor") have made an invention(s) (the "Invention(s)") set forth in an application for patent of the United States, entitled **THERMO-ELECTRICALLY PUMPED LIGHT-EMITTING DIODES**, and which is a:

- (1)  provisional application  
(a)  to be filed herewith; or  
(b)  bearing Application No. \_\_\_\_\_, and filed on \_\_\_\_\_;
- (2)  non-provisional application  
(a)  to be filed herewith; or  
(b)  bearing Application No. 61/866,892, and filed on August 16, 2013; and/or
- (3)  PCT application  
(a)  bearing Application No. \_\_\_\_\_, and filed on \_\_\_\_\_.

**WHEREAS**, The Massachusetts Institute of Technology, having its principal place of business at One Cambridge Center, Kendall Square, Room NE 18-501, Cambridge, MA 02142-1601 (the "Assignee"), is desirous of acquiring the entire right, title, and interest in: the Invention(s); the application for patent identified in paragraph (1), (2) and/or (3); the right to file applications for patent of the United States or other countries on the Invention(s); any application for patent of the United States or other countries claiming priority to these applications; any provisional or other right to recover damages, including royalties, for prior infringements of these applications; and any patent of the United States or other countries that may be granted therefor or thereon.

**NOW, THEREFORE**, for good and sufficient consideration, the receipt of which is hereby acknowledged, and to the extent that the Assignor has not done so already via a prior agreement with the Assignee, or if the Assignor has already done so via a prior agreement with the Assignee then in confirmation of any obligation to do so in said prior agreement, the Assignor has sold, assigned, transferred, and set over, and by these presents does sell, assign, transfer, and set over, unto the Assignee, its successors, legal representatives, and assigns, the Assignor's entire right, title, and interest in:

- (a) the Invention(s);  
(b) the application for patent identified in paragraph (1) (2) and/or (3);

(c) the right to file applications for patent of the United States or other countries on the Invention(s), including all rights under the Hague Convention, the Paris Convention for the Protection of Industrial Property and under the Patent Cooperation Treaty;

(d) any application(s) for patent of the United States or other countries claiming the Invention(s);

(e) any application(s) for patent of the United States or other countries claiming priority to the application for patent identified in paragraph (1), (2) and/or (3) or any application(s) for patent claiming the Invention(s), including any division(s), continuation(s), and continuation(s)-in-part; and

(f) any provisional or other right to recover damages, including royalties, for prior infringements of any application for patent identified in the preceding paragraphs (b)-(e); and

(g) any patent(s) of the United States or other countries that may be granted for or on any application for patent identified in the preceding paragraphs (b) – (e), including any reissue(s) and extension(s) of said patent(s).

The above-granted rights, titles, and interests are to be held and enjoyed by the Assignee, for its own use and behalf and the use and behalf of its successors, legal representatives, and assigns, as fully and entirely as the same would have been held and enjoyed by the Assignor had this sale and assignment not been made.


The Assignor hereby represents to the Assignee, its successors, legal representatives, and assigns, that, at the time of execution and delivery of these presents, or if applicable, at such time said prior agreement was executed, the Assignor is a lawful owner of an undivided interest in the entire right, title, and interest in and to the Invention(s), that the Invention(s) are unencumbered, except, if applicable, by obligation to assign in accordance with said prior agreement, and that the Assignor has good and full right and lawful authority to sell and convey the same in the manner set forth herein.

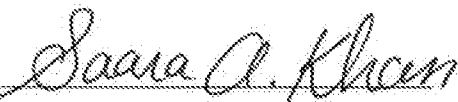
The Assignor hereby covenants and agrees to and with the Assignee, its successors, legal representatives, and assigns, that the Assignor will sign all papers and documents, take all lawful oaths, and do all acts necessary or required to be done in connection with any and all proceedings for the procurement, maintenance, enforcement and defense of the Invention(s), said applications, and said patents, including interference proceedings, without charge to the Assignor, its successors, legal representatives, and assigns, but at the cost and expense of the Assignee, its successors, legal representatives, and assigns.

The Assignor hereby authorizes and requests the attorneys of COOLEY LLP to insert in the spaces provided above the filing date, the application number, and the attorney docket number of the application identified in paragraph (1), (2) and/or (3) when known.

The Assignor understands and agrees that the attorneys and agents of the law firm of **Cooley LLP** do not personally represent Assignor or Assignor's legal interests. Since said attorneys and agents cannot provide legal advice to the Assignor with respect to this Assignment, Assignor acknowledges its right to seek its own independent legal counsel.

The Assignor hereby requests the Commissioner of Patents to issue said patents of the United States to the Assignee for the sole use and behalf of the Assignee, its successors, legal representatives, and assigns.

Inventor Signature:  Date: 23 June, 2014  
Parthiban Santhanam

Witness Signature:  Date: 23 June, 2014

Print Witness Name: SARA A. KHAN

Address: 37 Angell Ct Apt. 202  
Stanford, CA 94305

Inventor Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
Dodd Joseph Gray

Witness Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Print Witness Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

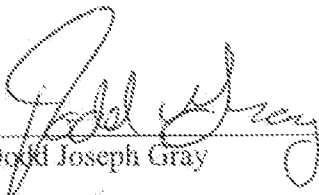
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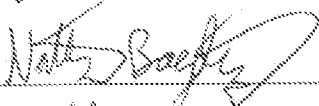
Inventor Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
Parthiban Santhanam

Witness Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Print Witness Name: \_\_\_\_\_

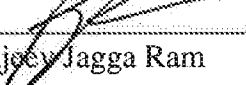
Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_


Inventor Signature:  \_\_\_\_\_ Date: 06/19/2014  
Donald Joseph Gray

Witness Signature:  \_\_\_\_\_ Date: 06/19/2014

Print Witness Name: Nathan Zane Bogdanowicz

Address: 330 Curtner Ave, Apt 3  
Palo Alto, CA 94306  
\_\_\_\_\_

Inventor Signature:  Date: 7/1/14  
Rajeev Jagga Ram

Witness Signature:  Date: 7.14.14

Print Witness Name: Shayne Fernandes

Address: 77 Mass Ave. 36477  
Cambridge MA ~~02139~~  
02139