

TRADEMARK ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

ETAS ID: TM506078

SUBMISSION TYPE:	NEW ASSIGNMENT		
NATURE OF CONVEYANCE:	SECURITY INTEREST		
CONVEYING PARTY DATA			
Name	Formerly	Execution Date	Entity Type
Nanosys, Inc.		01/15/2019	Corporation: DELAWARE
RECEIVING PARTY DATA			
Name:	Ocean II PLO, LLC		
Street Address:	3555 Alameda De Las Pulgas, Suite 205		
City:	Menlo Park		
State/Country:	CALIFORNIA		
Postal Code:	94025		
Entity Type:	Limited Liability Company: CALIFORNIA		
PROPERTY NUMBERS Total: 9			
Property Type	Number	Word Mark	
Serial Number:	87653993	QDOG	
Serial Number:	87353034	TRUEQ	
Serial Number:	87045185	HYPERION	
Serial Number:	85164648	QD-BLU	
Serial Number:	85164666	QDEF	
Serial Number:	77785291	QUANTUMRAIL	
Serial Number:	76387862	NANOSYS	
Serial Number:	85032152	QDMATRIX	
Serial Number:	78149021		
CORRESPONDENCE DATA			
Fax Number:	3146673633		
<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>			
Phone:	314.552.6077		
Email:	ipdocket@thompsoncoburn.com		
Correspondent Name:	Shoko Naruo		
Address Line 1:	Thompson Coburn LLP		
Address Line 2:	One US Bank Plaza		
Address Line 4:	St. Louis, MISSOURI 63101		
ATTORNEY DOCKET NUMBER:	62498-180855		

CH \$240.00 87653993

NAME OF SUBMITTER:	Shoko Naruo
SIGNATURE:	/sn/
DATE SIGNED:	01/16/2019
<p>Total Attachments: 37</p> <p>source=Intellectual Property Security Agreement#page1.tif source=Intellectual Property Security Agreement#page2.tif source=Intellectual Property Security Agreement#page3.tif source=Intellectual Property Security Agreement#page4.tif source=Intellectual Property Security Agreement#page5.tif source=Intellectual Property Security Agreement#page6.tif source=Intellectual Property Security Agreement#page7.tif source=Intellectual Property Security Agreement#page8.tif source=Intellectual Property Security Agreement#page9.tif source=Intellectual Property Security Agreement#page10.tif source=Intellectual Property Security Agreement#page11.tif source=Intellectual Property Security Agreement#page12.tif source=Intellectual Property Security Agreement#page13.tif source=Intellectual Property Security Agreement#page14.tif source=Intellectual Property Security Agreement#page15.tif source=Intellectual Property Security Agreement#page16.tif source=Intellectual Property Security Agreement#page17.tif source=Intellectual Property Security Agreement#page18.tif source=Intellectual Property Security Agreement#page19.tif source=Intellectual Property Security Agreement#page20.tif source=Intellectual Property Security Agreement#page21.tif source=Intellectual Property Security Agreement#page22.tif source=Intellectual Property Security Agreement#page23.tif source=Intellectual Property Security Agreement#page24.tif source=Intellectual Property Security Agreement#page25.tif source=Intellectual Property Security Agreement#page26.tif source=Intellectual Property Security Agreement#page27.tif source=Intellectual Property Security Agreement#page28.tif source=Intellectual Property Security Agreement#page29.tif source=Intellectual Property Security Agreement#page30.tif source=Intellectual Property Security Agreement#page31.tif source=Intellectual Property Security Agreement#page32.tif source=Intellectual Property Security Agreement#page33.tif source=Intellectual Property Security Agreement#page34.tif source=Intellectual Property Security Agreement#page35.tif source=Intellectual Property Security Agreement#page36.tif source=Intellectual Property Security Agreement#page37.tif</p>	

INTELLECTUAL PROPERTY SECURITY AGREEMENT

This **Intellectual Property Security Agreement** is made as of January 15, 2019 ("Security Agreement"), by **NANOSYS, INC.** ("Debtor") to and for the benefit of **OCEAN II PLO, LLC** ("Agent") for the benefit of the Lenders that are a party thereto (Agent, Lenders and any successors or assigns of the foregoing, the "Secured Parties").

RECITALS

A. Pursuant to a Loan and Security Agreement dated January 15, 2019 (as the same may be modified, amended, supplemented, restated or superseded from time to time, the "Loan Agreement") between **NANOSYS, INC.**, as "Borrower", the Agent and the lenders party thereto (each a "Lender" and collectively the "Lenders"), the Lenders have provided the Advance to Borrower pursuant to the terms of the Loan Documents. Terms not defined herein shall the meanings ascribed to them in the Loan Agreement.

B. As a condition precedent to the making of the Advance, Debtor has agreed to grant a security interest in the Collateral (as defined below) to the Secured Parties for purposes of securing the obligations of Debtor to the Secured Parties, subject to the terms of this Security Agreement.

NOW, THEREFORE, the parties hereto agree as follows:

1. GRANT OF SECURITY INTEREST. As collateral security for the prompt and complete payment and performance of all of each Debtor's present or future indebtedness, obligations and liabilities to the Secured Parties, including, without limitation, such indebtedness, obligations and liabilities under the Loan Agreement and the other Loan Documents, each Debtor hereby grants a security interest to the Agent for the benefit of the Secured Parties, in and to all of each Debtor's Intellectual Property, which shall include without limitation such Debtor's entire right, title and interest in, to and under the following, now or hereafter existing, created, acquired or held by such Debtor (all of which shall collectively be called the "Collateral"):

(a) Any and all Copyrights, including without limitation all copyright rights, copyright applications, copyright registrations and like protections in each work of authorship and derivative work thereof, whether published or unpublished, registered or unregistered and whether or not the same also constitutes a trade secret, including, without limitation, those set forth on **Exhibit A** attached hereto and incorporated herein by this reference.

(b) Any and all trade secrets;

(c) Any and all design rights which may be available to Debtor;

(d) Any and all Patents, including without limitation all patents, patent applications and like protections in the United States and outside of the United States including, without limitation, improvements, divisions, continuations, renewals, reissues, extensions and continuations-in-part of the same, including, without limitation, those set forth on **Exhibit B** attached hereto and incorporated herein by this reference;

(e) Any Trademarks, including without limitation all trademark and servicemark rights, whether registered or not, applications to register and registrations of the same and like protections, internet domain names and the entire goodwill of the business of Debtor connected with and symbolized by such trademarks, including, without limitation, those set forth on **Exhibit C** attached hereto and incorporated herein by this reference;

(f) Any and all claims for damages by way of past, present and future infringement of any of the rights included above, with the right, but not the obligation, to sue for and collect such damages for said use or infringement of the intellectual property rights identified above;

(g) All licenses or other rights to use any of the foregoing, and all license fees and royalties arising from such use to the extent permitted by such license or rights, whether now or hereafter granted by any Debtor to a third party or by any third party to Debtor;

(h) Any and all amendments, renewals and extensions of any of the foregoing; and

(i) All rights, licenses or property that is recognized as intellectual property by the laws of any Governmental Authority; and

(j) All proceeds and products of the foregoing, including, without limitation, all payments under insurance or any indemnity or warranty payable in respect of any of the foregoing together with any and all right to sue any parties for past, present and future infringements and all rights corresponding thereto.

2. AUTHORIZATION AND REQUEST. Each Debtor hereby authorizes the Commissioner for Copyrights, the Commissioner for Patents and the Commissioner for Trademarks to record and register this Agreement upon request by Agent to evidence the security interests granted herein. Each Debtor further authorized Agent to make all such public or other filings as would be required to perfect the security interests granted herein under the Code. This Agreement is, among other things, intended by the parties to be a security agreement for purposes of the Code.

3. COVENANTS AND WARRANTIES. Each Debtor represents, warrants, covenants and agrees as follows:

(a) Debtor is the sole owner or poses the valid right to use all of the Collateral that is reasonably necessary for the operation of its business as presently or intended to be operated. Except for (i) over the counter software and non-customized mass market licenses that are commercially available to the public, (ii) Permitted Licenses or (iii) as provided in the Schedule, Debtor is the sole owner of the Collateral that is reasonably necessary for the operation of its business as presently or intended to be operated;

(b) Section 4 of the Perfection Certificate lists each Debtor's Copyrights, Trademarks and Patents each of which, to Debtor's knowledge, is valid and enforceable except as set forth in the Schedule;

(c) To the knowledge of Debtor, no use of the Intellectual Property infringes upon the rights of any other Person and no claim has been made to any Debtor that any Intellectual Property violates or infringes the rights of any third party;

(d) No Debtor is a party to any agreement that restricts the grant by such Debtor of a security interest in its Copyrights, Trademarks and Patents;

(e) Performance of this Security Agreement does not conflict with or result in a breach of any agreement to which any Debtor is a party or by which any Debtor is bound, except to the extent that certain intellectual property agreements prohibit the assignment of the rights thereunder to a third party without the licensor's or other party's consent and this Security Agreement constitutes an assignment;

(f) During the term of this Security Agreement, no Debtor will sell, transfer, assign or otherwise encumber any interest in the Collateral, except for (i) Permitted Licenses; (ii) subject to Debtor's execution of appropriate documents, in form reasonably acceptable to Agent, to perfect or continue the perfection of Agent's (for the benefit of the Secured Parties) interest in the Collateral, transfers to Affiliates of Debtor and (iii) if the same would constitute a Permitted Lien or Permitted Investment;

(g) Each Debtor shall promptly advise Agent of any material changes in the composition of the Collateral, including but not limited to any subsequent ownership rights of such Debtor in or to any Intellectual Property not specified in this Security Agreement in the reporting required by Section 6.9(a) of the Loan Agreement;

(h) Each Debtor shall (i) protect, defend and maintain the validity and enforceability of the Intellectual Property material to any Debtor's business, (ii) use commercially reasonable efforts to detect infringements of the Intellectual Property and promptly advise Agent in writing of infringements detected in any of its Intellectual Property and (iii) not allow any Intellectual Property material to Debtor's business to be abandoned, forfeited or dedicated to the public without the written consent of Agent, which shall not be unreasonably withheld, unless Debtor determines that reasonable business practices suggest that abandonment is appropriate;

(i) This Security Agreement creates, and in the case of after acquired Collateral, this Security Agreement will create at the time Debtor first has rights in such after acquired Collateral, in favor of Agent a valid and, upon making the filings referred to in **Section 3(i)** below perfected first priority security interest in the Collateral in the United States securing the payment and performance of all present or future indebtedness, obligations and liabilities of Debtor to the Secured Parties, including, without limitation, such indebtedness, obligations and liabilities under the Loan Agreement and the other Loan Documents, subject only to Permitted Liens;

(j) To its knowledge, except for, and upon, the filings with, as applicable, (1) the United States Patent and Trademark office with respect to the Patents and Trademarks, (2) the Register of Copyrights with respect to the Copyrights and (3) the UCC Division of the Delaware Secretary of State, necessary to perfect the security interests created hereunder, and except as has been already made or obtained, no authorization, approval or other action by, and no notice to or filing with, any United States

governmental authority or United States regulatory body is required either (a) for the grant by Debtor of the security interest granted hereby or for the execution, delivery or performance of this Security Agreement by Debtor in the United States or (b) for the perfection in the United States or the exercise by any Secured Party of its rights and remedies hereunder;

(k) All information heretofore, herein or hereafter supplied to the Secured Parties by or on behalf of Debtor with respect to the Collateral is accurate and complete in all material respects;

(l) Debtor shall not enter into any agreement that would materially impair or conflict with Debtor's obligations hereunder without Agent's prior written consent, which consent shall not be unreasonably withheld. Debtor shall not permit the inclusion in any material contract to which it becomes a party of any provisions that could or might in any way prevent the creation of a security interest in Debtor's rights and interests in any property included within the definition of the Collateral acquired under such contracts; and

(m) Upon any executive officer of Debtor obtaining actual knowledge thereof, Debtor will promptly notify Agent in writing of any event that materially adversely affects the value of any material Collateral, the ability of Debtor to dispose of any material Collateral or the rights and remedies of the Secured Parties in relation to any material Collateral, including the levy of any legal process against any of the material Collateral.

4. AGENT'S RIGHTS. Agent, for the benefit of the Secured Parties, shall have the right, but not the obligation, to take, at Debtor's sole expense, any actions that Debtor is required under this Security Agreement to take but which Debtor fails to take, after fifteen (15) days' written notice to Debtor. Debtor shall reimburse the Secured Parties for any such amounts expended within ten (10) days of Agent's demand therefore, and shall indemnify the Secured Parties for all costs and expenses associated therewith in accordance with **Section 8** hereof.

5. FURTHER ASSURANCES; ATTORNEY IN FACT.

(a) At such time as any of the quarterly reports are provided under Section 6.9(a) of the Loan Agreement, Debtor agrees to deliver to Agent a report, in form acceptable to Agent and certified by an officer of Debtor, which lists all Copyrights, Patents and Trademarks that are material to the operation of Debtor's business on an on-going basis, and in which the Secured Parties do not already have a perfected security interest (the "Quarterly Report"); provided, however, Debtor may provide a general description of the Copyrights by type.

(b) On a continuing basis upon Agent's written request, Debtor will make, execute, acknowledge and deliver, and file and record in the proper filing and recording places in the United States, all such instruments, including appropriate financing and continuation statements and collateral agreements and filings with the United States Patent and Trademark Office and the Register of Copyrights, and take all such action as may reasonably be necessary or advisable, or as reasonably requested by Agent to perfect Secured Party's security interest in the Collateral reasonably necessary to the operation of Debtor's business on an on-going basis or the value of the Collateral, and otherwise to carry out the intent and purposes of this Security Agreement, or for assuring and confirming to Agent the grant or perfection of a security interest in all Collateral.

(c) Debtor hereby irrevocably appoints Agent as Debtor's attorney-in-fact, with full authority in the place and stead of Debtor and in the name of Debtor, (i) to modify, in its reasonable discretion, Exhibit A, Exhibit B or Exhibit C of this Security Agreement without first obtaining Debtor's approval of or signature to such modification by amending hereof, as appropriate, to include reference to any material right, title or interest in any Copyrights, Patents or Trademarks acquired by Debtor after the execution hereof or to delete any reference to any right, title or interest in any Copyrights, Patents or Trademarks in which Debtor no longer has or claims any right, title or interest, (ii) to file, in its reasonable discretion, one or more financing or continuation statements and amendments thereto, relative to any of the Collateral without the signature of Debtor where permitted by law and (iii) after the occurrence and during the continuance of an Event of Default, exercise its remedies under the California Uniform Commercial Code.

6. EVENTS OF DEFAULT. The occurrence of any of the following shall constitute an "Event of Default" under this Security Agreement:

(a) An Event of Default occurs under the Loan Agreement or any of the other Loan Documents; or

(b) Debtor breaches any warranty or covenant or agreement in any material respect made by Debtor in this Security Agreement and, as to any breach that is capable of cure, Debtor fails to cure such breach within fifteen (15) days of the occurrence of such breach following written notice thereof to Debtor.

7. REMEDIES. Upon the occurrence and during the continuance of an Event of Default, Agent on behalf of the Secured Parties shall have the right to exercise all the remedies of a secured party under the California Uniform Commercial Code, including, without limitation, the right to require Debtor to assemble the Collateral and any tangible property in which Agent has a security interest and to make it available to Agent at a place designated by Agent. Agent shall have a nonexclusive, royalty free license to use the Copyrights, Patents and Trademarks to the extent reasonably necessary to permit Agent to exercise its rights and remedies upon the occurrence and during the continuance of an Event of Default. Debtor will pay any expenses (including reasonable attorneys' fees) incurred by any Secured Party in connection with the exercise of any of such Secured Party's rights hereunder, including, without limitation, any expense incurred in disposing of the Collateral. All of Secured Party's rights and remedies with respect to the Collateral shall be cumulative.

8. INDEMNITY. Each Debtor shall pay, indemnify, and hold Agent and each Lender, and each of their officers, directors, employees, partners, agents, counsel and attorneys-in-fact (each, an "Indemnified Person") harmless from and against any and all liabilities, obligations, losses, damages, penalties, actions, judgments, suits, costs, charges, expenses or disbursements (including Lender Expenses and reasonable attorney's fees) of any kind or nature whatsoever with respect to the execution, delivery, enforcement, performance and administration of this Agreement or the exercise by any Secured Party of its rights or remedies hereunder or the transactions contemplated hereby and thereby, and with respect to any investigation, litigation or proceeding (including any case, action or proceeding before any court or other Governmental Authority relating to bankruptcy, reorganization, insolvency, liquidation, dissolution or relief of debtors or any appellate proceeding) related to this Agreement; provided, that no Debtor shall have any obligation hereunder to any Indemnified Person with respect to Indemnified Liabilities that are

solely the direct result of the gross negligence or willful misconduct of such Indemnified Person as determined by a court of competent jurisdiction in a final non-appealable judgment.

(b) At the election of Agent, Debtors shall defend such Indemnified Persons in connection with the Indemnified Liabilities, using a single legal counsel satisfactory to Agent (and, in the event of a conflict of interest acknowledged by such legal counsel between the Indemnified Persons, additional legal counsel), at the sole cost and expense of Debtor. All indemnity amounts owing under this **Section 8** shall be paid within thirty (30) days after written demand.

9. RELEASE OF SECURITY INTEREST; STANDSTILL ON REMEDIES. At such time as Debtor shall completely satisfy all of the obligations secured hereunder, Agent shall execute and deliver to Debtor all deeds, assignments, releases, terminations, filings and other instruments as may be necessary or proper to release Agent's security interest hereunder.

10. NO FAILURE OR DELAY. No failure or delay on the part of any Secured Party in the exercise of any power, right or privilege hereunder shall operate as a waiver thereof, nor shall any single or partial exercise thereof.

11. ATTORNEYS' FEES. If any action relating to this Security Agreement is brought by either party hereto against the other party, the prevailing party shall be entitled to recover reasonable attorneys' fees, costs and disbursements.

12. AMENDMENTS. This Security Agreement may be amended only by a written instrument signed by Agent and Debtor, except amendments made pursuant to Section 5(c)(i) hereto.

13. NOTICES. Any and all notices to be given hereunder shall be given in accordance with Article 11 of the Loan Agreement.

14. TIME OF ESSENCE. Time is of the essence for the performance of all obligations set forth in this Security Agreement and the other Loan Documents.

15. COUNTERPARTS. This Security Agreement may be executed in any number of counterparts, each of which when so delivered shall be deemed an original, but all such counterparts shall constitute but one and the same instrument. Each such Security Agreement shall become effective upon the execution of a counterpart hereof or thereof by each of the parties hereto and telephonic notification that such executed counterparts has been received by Debtor and Agent.

16. CHOICE OF LAW AND VENUE; JURY TRIAL WAIVER.

(a) THIS AGREEMENT SHALL BE GOVERNED BY, AND CONSTRUED IN ACCORDANCE WITH, THE INTERNAL LAWS OF THE STATE OF CALIFORNIA, WITHOUT REGARD TO PRINCIPLES OF CONFLICTS OF LAW. EACH DEBTOR AND THE SECURED PARTIES HEREBY SUBMIT TO THE EXCLUSIVE JURISDICTION OF THE STATE AND FEDERAL COURTS LOCATED IN THE COUNTY OF SAN MATEO, STATE OF CALIFORNIA. EACH DEBTOR, AGENT AND LENDERS EACH HEREBY WAIVE THEIR RESPECTIVE RIGHTS TO A JURY TRIAL OF ANY CLAIM OR CAUSE OF ACTION BASED UPON OR ARISING OUT OF ANY OF THE LOAN DOCUMENTS OR ANY OF THE TRANSACTIONS CONTEMPLATED THEREIN, INCLUDING CONTRACT CLAIMS, TORT CLAIMS, BREACH OF DUTY CLAIMS, AND ALL OTHER COMMON LAW OR STATUTORY CLAIMS. EACH PARTY RECOGNIZES

AND AGREES THAT THE FOREGOING WAIVER CONSTITUTES A MATERIAL INDUCEMENT FOR IT TO ENTER INTO THIS AGREEMENT. EACH PARTY REPRESENTS AND WARRANTS THAT IT HAS REVIEWED THIS WAIVER WITH ITS LEGAL COUNSEL AND THAT IT KNOWINGLY AND VOLUNTARILY WAIVES ITS JURY TRIAL RIGHTS FOLLOWING CONSULTATION WITH LEGAL COUNSEL.

(b) IF THE FOREGOING JURY TRIAL WAIVER IS FOR ANY REASON UNENFORCEABLE, THE PARTIES AGREE TO RESOLVE ALL CLAIMS, CAUSES AND DISPUTES THROUGH JUDICIAL REFERENCE PURSUANT TO CODE OF CIVIL PROCEDURE SECTION 638 ET SEQ., BEFORE A MUTUALLY ACCEPTABLE REFEREE IN SAN MATEO COUNTY SITTING WITHOUT A JURY OR, IF THE PARTIES CANNOT AGREE ON A REFEREE, THEN ONE APPOINTED BY THE PRESIDING JUDGE OF THE CALIFORNIA SUPERIOR COURT FOR SAN MATEO COUNTY, CALIFORNIA. NOTHING IN THIS SECTION SHALL RESTRICT A PARTY FROM EXERCISING PRE-JUDGMENT REMEDIES OR ITS RIGHTS UNDER THE CODE.

17. CONFLICT. In the event of a conflict between any term and/or provision contained in this Security Agreement with any term and/or provision contained in any of the Loan Agreement, the term and/or provision of the Loan Agreement shall govern.

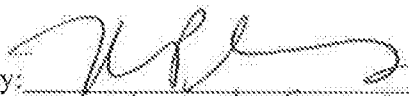
18. SEVERABILITY. If any provision of this Agreement or its application to any Person or circumstance will be invalid or unenforceable to any extent, the remainder of this Agreement or the application of the provision to other Persons or circumstances will not be affected thereby and will be enforceable to the greatest extent permitted by law.

[THIS SECTION INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, the parties hereto have executed this Security Agreement on the day and year first above written.

DEBTOR :

NANOSYS, INC.
a Delaware corporation

By: 
Name: Nolan Gambrey
Title: CEO

AGENT:

OCEAN II PLO, LLC

By: **STRUCTURAL CAPITAL GP II, LLC,**
a Delaware limited liability company
its General Partner

By: _____
Name: _____
Title: _____

IN WITNESS WHEREOF, the parties hereto have executed this Security Agreement on the day and year first above written.

DEBTOR :

NANOSYS, INC.

a Delaware corporation

By: _____
Name: _____
Title: _____

AGENT:

OCEAN II PLO, LLC

By: **STRUCTURAL CAPITAL GP II, LLC,**
a Delaware limited liability company
its General Partner

By: *Kai Tse*
Name: *Kai Tse*
Title: *Manager*

Exhibit A
COPYRIGHTS

1. REGISTERED:

None.

2. UNREGISTERED:

None.

3. APPLICATIONS IN PROCESS:

None.

Exhibit B

U.S. AND NON U.S. PATENTS AND PATENT APPLICATIONS

Patent Schedule:

Country	Title	App. No.	App. Date	Patent Number
Australia	LOW CADMIUM CONTENT NANOSTRUCTURE COMPOSITIONS AND USES THEREOF	2017223845	2/24/2017	
Australia	STABLE INP QUANTUM DOTS WITH THICK SHELL COATING AND METHOD OF PRODUCING THE SAME	2017255530	4/26/2017	
Australia	METHOD FOR SYNTHESIZING CORE SHELL NANOCRYSTALS AT HIGH TEMPERATURES	2017278340	6/6/2017	
Australia	AMBIENT LIGHT COLOR COMPENSATING DEVICE	2017280855	5/31/2017	
Australia	METHOD TO IMPROVE THE MORPHOLOGY OF CORE/SHELL QUANTUM DOTS FOR HIGHLY LUMINESCENT NANOSTRUCTURES	2017267735	5/19/2017	
Canada	ALKYL-ACID LIGANDS FOR NANOCRYSTALS	2,905,883	3/13/2014	
Canada	METHOD FOR SOLVENTLESS QUANTUM DOT EXCHANGE	2,905,890	3/13/2014	
Canada	POLYHEDRAL OLIGOMERIC SILSESQUIOXANE NANOCRYSTAL STABILIZATION LIGANDS	2,905,913	3/13/2014	
Canada	LIGHT EMITTING DIODE (LED) DEVICES	2,927,191	10/16/2014	
Canada	SILICONE LIGANDS FOR QUANTUM DOTS	2,955,176	7/15/2015	
Canada	LOW CADMIUM CONTENT NANOSTRUCTURE COMPOSITIONS AND USES THEREOF	3,015,622	2/24/2017	
Canada	STABLE INP QUANTUM DOTS WITH THICK SHELL COATING AND METHOD OF PRODUCING THE SAME	3,021,763	4/26/2017	
Canada	METHOD TO IMPROVE THE MORPHOLOGY OF CORE/SHELL QUANTUM DOTS FOR HIGHLY LUMINESCENT NANOSTRUCTURES	3,024,169	5/19/2017	
Canada	Ambient light color compensating device	3,025,662	5/31/2017	
Canada	Method for synthesizing core shell nanocrystals at high temperatures	3,026,102	6/6/2017	
Canada	Methods for Encapsulating Nanocrystals	2,678,798	3/19/2008	2,678,798

Country	Title	App. No.	App. Date	Patent Number
China P.R.	LIGHT EMITTING DIODE (LED) DEVICES	201480064542.3	5/26/2016	
China P.R.	QUANTUM DOT FILMS, LIGHTING DEVICES, AND LIGHTING METHODS	201510353134.6	11/2/2011	
China P.R.	SILICONE LIGANDS FOR QUANTUM DOTS	201580038190.9	7/15/2015	
China P.R.	BACKLIGHT UNITS FOR DISPLAY DEVICES	201680080766.2	12/21/2016	
China P.R.	INP QUANTUM DOTS WITH GAP AND ALP SHELLS AND METHODS OF PRODUCING THE SAME	201780012866.6	1/13/2017	
China P.R.	LOW CADMIUM CONTENT NANOSTRUCTURE COMPOSITIONS AND USES THEREOF	201780020560.5	2/24/2017	
China P.R.	METHOD TO IMPROVE THE MORPHOLOGY OF CORE/SHELL QUANTUM DOTS FOR HIGHLY LUMINESCENT NANOSTRUCTURES	201780030780.6	5/19/2017	
China P.R.	METHOD FOR SYNTHESIZING CORE SHELL NANOCRYSTALS AT HIGH TEMPERATURES	201780035034.6	06/06/2017	
China P.R.	AMBIENT LIGHT COLOR COMPENSATING DEVICE	201780038961.3	05/31/2017	
China P.R.	Methods for Encapsulating Nanocrystals	200880008604.3	3/19/2008	101641424
China P.R.	Functionalized Matrixes for Dispersion of Nanostructures	201080019498.6	4/29/2010	102656233B
China P.R.	SILICONE LIGANDS FOR STABILIZING QUANTUM DOT FILMS	201380040063.3	6/11/2013	104508049
China P.R.	HIGHLY LUMINESCENT NANOSTRUCTURES AND METHODS OF PRODUCING SAME	201380041371.8	6/13/2013	104520228
China P.R.	FUNCTIONALIZED MATRIXES FOR DISPERSION OF NANOSTRUCTURES	201410513100.4	4/29/2010	104387772
China P.R.	METHOD FOR SOLVENTLESS QUANTUM DOT EXCHANGE	201480022380.7	3/13/2014	105247010
China P.R.	POLYHEDRAL OLIGOMERIC SILSESQUIOXANE NANOCRYSTAL STABILIZATION LIGANDS	201480022802.0	3/13/2014	105143235
China P.R.	Organic Species that Facilitate Charge Transfer to or from Nanostructures	3824336.9	9/4/2003	100584921C
EPC	Quantum dot film	2014740462	1/16/2014	
EPC	Non-fouling surfaces for reflective materials	09739170.0	4/29/2009	

Country	Title	App. No.	App. Date	Patent Number
EPC	Light-Emitting Diode (LED) Devices Comprising Nanocrystals	10827425.9	10/27/2010	
EPC	Quantum dot films, lighting devices, and lighting methods	11839257.0	11/2/2011	
EPC	SILICONE LIGANDS FOR STABILIZING QUANTUM DOT FILMS	13807081.8	6/11/2013	
EPC	HIGHLY LUMINESCENT NANOSTRUCTURES AND METHODS OF PRODUCING SAME	13813235.2	6/13/2013	
EPC	POLYHEDRAL OLIGOMERIC SILSESQUOXANE NANOCRYSTAL STABILIZATION LIGANDS	14774527.7	3/13/2014	
EPC	ALKYL-ACID LIGANDS FOR NANOCRYSTALS	14775489.9	3/14/2014	
EPC	BACKLIGHT UNIT FOR DISPLAY DEVICES ADAPTED TO REDUCE LIGHT LEAKAGE	14799639.1	11/4/2014	
EPC	LIGHT EMITTING DIODE (LED) DEVICES	14854249.1	10/16/2014	
EPC	SILICONE LIGANDS FOR QUANTUM DOTS	15821597.0	7/15/2015	
EPC	WHITE POINT UNIFORMITY IN DISPLAY DEVICES	16720246.4	9/13/2017	
EPC	HIGHLY LUMINESCENT CADMIUM-FREE NANOCRYSTALS WITH BLUE EMISSION	16770137.4	9/8/2016	
EPC	BACKLIGHT UNITS FOR DISPLAY DEVICES	16825973.7	12/21/2016	
EPC	INP QUANTUM DOTS WITH GAP AND ALP SHELLS AND METHODS OF PRODUCING THE SAME	17704346.0	1/13/2017	
EPC	LOW CADMIUM CONTENT NANOSTRUCTURE COMPOSITIONS AND USES THEREOF	17711820.5	2/24/2017	
EPC	STABLE INP QUANTUM DOTS WITH THICK SHELL COATING AND METHOD OF PRODUCING THE SAME	17724149.4	4/26/2017	
EPC	METHOD TO IMPROVE THE MORPHOLOGY OF CORE/SHELL QUANTUM DOTS FOR HIGHLY LUMINESCENT NANOSTRUCTURES	17728319.9	5/19/2017	
EPC	AMBIENT LIGHT COLOR COMPENSATING DEVICE	17729671.2	5/31/2017	
EPC	METHOD FOR SYNTHESIZING CORE SHELL NANOCRYSTALS AT HIGH TEMPERATURES	17736794.3	6/6/2017	
EPC	METHODS FOR BUFFERED COATING OF NANOSTRUCTURES	17740819.2	06/21/2017	
EPC	Organic Species that Facilitate Charge Transfer to or from Nanostructures	03754451.7	9/4/2003	1537187

Country	Title	App. No.	App. Date	Patent Number
EPC	Methods for Encapsulating Nanocrystals	08742127.7	3/19/2008	2121872
EPC	Functionalized Matrixes for Dispersion of Nanostructures	10770067.6	4/29/2010	2424941
EPC	METHOD FOR SOLVENTLESS QUANTUM DOT EXCHANGE	14773991.6	3/13/2014	2970764
France	METHODS FOR ENCAPSULATING NANOCRYSTALS	08742127.7	3/19/2008	502016000016235
France	METHOD FOR SOLVENTLESS QUANTUM DOT EXCHANGE	14773991.6	3/13/2014	2970764
Germany	METHODS FOR ENCAPSULATING NANOCRYSTALS	08742127.7	3/19/2008	60 2008 041 543.0-08
Germany	METHOD FOR SOLVENTLESS QUANTUM DOT EXCHANGE	14773991.6	3/13/2014	602014022092.4
Germany	FUNCTIONALIZED MATRIXES FOR DISPERSION OF NANOSTRUCTURES	10770067.6	4/29/2010	602010042706.4
Germany	Organic Species that Facilitate Charge Transfer to or from Nanostructures	3754451.7	9/4/2003	60341841.4
Great Britain	METHODS FOR ENCAPSULATING NANOCRYSTALS	08742127.7	3/19/2008	2121872
Great Britain	Organic Species that Facilitate Charge Transfer to or from Nanostructures	3754451.7	9/4/2003	1537187
Italy	METHODS FOR ENCAPSULATING NANOCRYSTALS	08742127.7	3/19/2008	2121872
Italy	METHOD FOR SOLVENTLESS QUANTUM DOT EXCHANGE	14773991.6	3/13/2014	2970764
Japan	量子ドットフィルム quantum dot film	2015553826	1/16/2014	06416119
Japan	HIGHLY LUMINESCENT NANOSTRUCTURES AND METHODS OF PRODUCING SAME	2015-520260	6/13/2013	
Japan	LIGHT EMITTING DIODE (LED) DEVICES	2016-521939	10/16/2014	
Japan	SILICONE LIGANDS FOR QUANTUM DOTS	2017-500963	7/15/2015	
Japan	WHITE POINT UNIFORMITY IN DISPLAY DEVICES	2017-548262	9/13/2017	
Japan	BACKLIGHT UNITS FOR DISPLAY DEVICES	2018-533074	12/21/2016	
Japan	INP QUANTUM DOTS WITH GAP AND ALP SHELLS AND METHODS OF PRODUCING THE SAME	2018-536410	1/13/2017	
Japan	LOW CADMIUM CONTENT NANOSTRUCTURE COMPOSITIONS AND USES THEREOF	2018-544362	2/24/2017	

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Japan	STABLE INP QUANTUM DOTS WITH THICK SHELL COATING AND METHOD OF PRODUCING THE SAME	2018-555728	4/26/2017	
Japan	METHOD TO IMPROVE THE MORPHOLOGY OF CORE/SHELL QUANTUM DOTS FOR HIGHLY LUMINESCENT NANOSTRUCTURES	2018-560089	5/19/2017	
Japan	METHOD FOR SYNTHESIZING CORE SHELL NANOCRYSTALS AT HIGH TEMPERATURES	2018-562230	6/6/2017	
Japan	AMBIENT LIGHT COLOR COMPENSATING DEVICE	2018-566260	05/31/2017	
Japan	METHODS FOR BUFFERED COATING OF NANOSTRUCTURES	2018-567633	06/21/2017	
Japan	Organic Species that Facilitate Charge Transfer to or from Nanostructures	2009-288058	9/4/2003	5306163
Japan	Functionalized Matrixes for Dispersion of Nanostructures	2012-508486	4/29/2010	6236202
Japan	Methods for Encapsulating Nanocrystals	2013-181580	3/19/2008	5774069
Japan	Quantum dot films, lighting devices, and lighting methods	2013-538785	11/2/2011	5940079
Japan	Functionalized Matrixes for Dispersion of Nanostructures	2015-181115	4/29/2010	6072872
Japan	SILICONE LIGANDS FOR STABILIZING QUANTUM DOT FILMS	2015-518444	6/11/2013	6162231
Japan	POLYHEDRAL OLIGOMERIC SILSESQUIOXANE NANOCRYSTAL STABILIZATION LIGANDS	2016-501830	3/13/2014	6234543
Japan	METHOD FOR SOLVENTLESS QUANTUM DOT EXCHANGE	2016-501855	3/13/2014	6250785
Japan	POLYHEDRAL OLIGOMERIC SILSESQUIOXANE NANOCRYSTAL STABILIZATION LIGANDS	2016-501860	3/13/2014	6283092
Mexico	Quantum dot film. pelicula de punto cuantico.	MX20159193A	7/16/2015	MX348956B
Netherlands	METHODS FOR ENCAPSULATING NANOCRYSTALS	08742127.7	3/19/2008	2121872
PCT	STABLE INP QUANTUM DOTS WITH THICK SHELL COATING AND METHOD OF PRODUCING THE SAME	PCT/US2017/029543	4/26/2017	
PCT	METHOD TO IMPROVE THE MORPHOLOGY OF CORE/SHELL QUANTUM DOTS FOR HIGHLY LUMINESCENT NANOSTRUCTURES	PCT/US2017/033503	5/19/2017	
PCT	METHOD FOR SYNTHESIZING CORE SHELL NANOCRYSTALS AT HIGH TEMPERATURES	PCT/US2017/036100	6/6/2017	

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PCT	METHODS FOR BUFFERED COATING OF NANOSTRUCTURES	PCT/US2017/038564	6/21/2017	
PCT	ARCHITECTURAL WINDOW WITH BUILT-IN QLED LIGHTING	PCT/US2017/051447	9/14/2017	
PCT	RADIATION ABSORBING ELEMENT FOR INCREASING COLOR GAMUT OF QUANTUM DOT BASED DISPLAY DEVICES	PCT/US2017/057868	10/23/2017	
PCT	QUANTUM DOT LED WITH SPACER PARTICLES	PCT/US2017/063897	11/30/2017	
PCT	AMBIENT LIGHT COLOR COMPENSATING DEVICE	PCT/US2017/35179	5/31/2017	
PCT	PEG-BASED LIGANDS WITH ENHANCED DISPERSIBILITY AND IMPROVED PERFORMANCE	PCT/US2018/000232	8/16/2018	
PCT	RAPID THICKENING OF AMINOSILICONE TO PROMOTE EMULSION STABILITY AND ADHESION OF UV-CURABLE QUANTUM DOT ENHANCEMENT FILM EMULSIONS	PCT/US2018/016154	1/31/2018	
PCT	SILICONE COPOLYMERS AS EMULSIFICATION ADDITIVES FOR QUANTUM DOT RESIN PREMIX	PCT/US2018/031639	5/8/2018	
PCT	IN-SITU CROSS-LINKING OF EMULSIFIED QUANTUM DOT-CONTAINING DOMAINS WITHIN A CARRIER RESIN	PCT/US2018/031940	5/10/2018	
PCT	ACID STABILIZATION OF QUANTUM DOT-RESIN CONCENTRATES AND PREMIXES	PCT/US2018/035999	6/5/2018	
PCT	THIOLATED HYDROPHILIC LIGANDS FOR IMPROVED QUANTUM DOT RELIABILITY IN RESIN FILMS	PCT/US2018/036407	6/7/2018	
PCT	HOMOGENEOUS ANAEROBICALLY STABLE QUANTUM DOT CONCENTRATES	PCT/US2018/038934	6/22/2018	
PCT	USING MULTIPLE EXCITATION WAVELENGTHS IN NANOSTRUCTURE BASED DISPLAY DEVICES	PCT/US2018/047705	8/23/2018	
PCT	NANOSTRUCTURE BASED DISPLAY DEVICES	PCT/US2018/047709	8/23/2018	
PCT	NANOSTRUCTURE BASED DISPLAY DEVICES	PCT/US2018/047712	8/23/2018	
PCT	APPLICATION OF POLYFUNCTIONAL LIGANDS FOR IMPROVING PERFORMANCE AND STABILITY OF QUANTUM DOT INKS	PCT/US2018/057288	10/24/2018	
PCT	STABLE INP QUANTUM DOTS WITH THICK SHELL COATING AND METHOD OF PRODUCING THE SAME	PCT/US2018/057307	10/24/2018	

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PCT	METHOD FOR INCREASING THE LIGHT OUTPUT OF MICROLED DEVICES USING QUANTUM DOTS	PCT/US2018/24540	3/27/2018	
Singapore	Quantum dot film	2015110005569	1/16/2014	11201505569
South Korea	Methods for oriented growth of nanowires on patterned substrates the method for the aligned growth of the nanowire on the patterned substrate.	20087018738	7/29/2008	1287350
South Korea	Quantum dot film 양자점 필름 quantum dot film.	20157020988	1/16/2014	
South Korea	Quantum dot films, lighting devices, and lighting methods	10-2013-7014777	11/2/2011	
South Korea	SILICONE LIGANDS FOR STABILIZING QUANTUM DOT FILMS	10-2015-7001646	6/11/2013	
South Korea	HIGHLY LUMINESCENT NANOSTRUCTURES AND METHODS OF PRODUCING SAME	10-2015-7002836	6/13/2013	
South Korea	ALKYL-ACID LIGANDS FOR NANOCRYSTALS	10-2015-7028951	3/13/2014	
South Korea	METHOD FOR SOLVENTLESS QUANTUM DOT EXCHANGE	10-2015-7028952	3/13/2014	
South Korea	POLYHEDRAL OLIGOMERIC SILSESQUIOXANE NANOCRYSTAL STABILIZATION LIGANDS	10-2015-7029016	3/13/2014	
South Korea	LIGHT EMITTING DIODE (LED) DEVICES	10-2016-7012707	5/13/2016	
South Korea	SILICONE LIGANDS FOR QUANTUM DOTS	10-2017-7003973	7/15/2015	
South Korea	WHITE POINT UNIFORMITY IN DISPLAY DEVICES	10-2017-7032735	11/10/2017	
South Korea	HIGHLY LUMINESCENT CADMIUM-FREE NANOCRYSTALS WITH BLUE EMISSION	10-2018-7009932	9/8/2016	
South Korea	BACKLIGHT UNITS FOR DISPLAY DEVICES	10-2018-7021937	12/21/2016	
South Korea	INP QUANTUM DOTS WITH GAP AND ALP SHELLS AND METHODS OF PRODUCING THE SAME	10-2018-7023528	1/13/2017	
South Korea	LOW CADMIUM CONTENT NANOSTRUCTURE COMPOSITIONS AND USES THEREOF	10-2018-7027244	2/24/2017	
South Korea	STABLE INP QUANTUM DOTS WITH THICK SHELL COATING AND METHOD OF PRODUCING THE SAME	10-2018-7034110	4/26/2017	
South Korea	METHOD TO IMPROVE THE MORPHOLOGY OF CORE/SHELL QUANTUM DOTS FOR HIGHLY LUMINESCENT NANOSTRUCTURES	10-2018-7036760	05/19/2017	

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South Korea	METHOD FOR SYNTHESIZING CORE SHELL NANOCRYSTALS AT HIGH TEMPERATURES	10-2019-7000286	06/06/2017	
South Korea	Organic Species that Facilitate Charge Transfer to or from Nanostructures	10-2005-7003694	9/4/2003	10-1032672
South Korea	Methods for Encapsulating Nanocrystals	10-2009-7021697	3/19/2008	10-1686669
South Korea	Functionalized Matrixes for Dispersion of Nanostructures	10-2011-7028626	4/29/2010	10-1783487
South Korea	Light-Emitting Diode (LED) Devices Comprising Nanocrystals	10-2012-7013915	10/27/2010	10-1312238
Taiwan	Quantum dot film	20143102004	1/20/2014	
Taiwan	QUANTUM DOT ENCAPSULATION TECHNIQUES	105139924	12/2/2016	
Taiwan	QUANTUM DOT BASED COLOR CONVERSION LAYER IN DISPLAY DEVICES	105139934	12/2/2016	
Taiwan	STABLE INP QUANTUM DOTS WITH THICK SHELL COATING AND METHOD OF PRODUCING THE SAME	107137537	10/24/2018	
Taiwan	APPLICATION OF POLYFUNCTIONAL LIGANDS FOR IMPROVING PERFORMANCE AND STABILITY OF QUANTUM DOT INKS	107137538	10/24/2018	
Taiwan	Quantum dot films, lighting devices, and lighting methods	100140135	11/3/2011	I574430
Taiwan	Highly Luminescent Nanostructures and Methods of Producing Same	102120548	6/10/2013	I596188
Taiwan	Silicone ligands for stabilizing quantum dot films	102122275	6/21/2013	I628207
United Kingdom	METHOD FOR SOLVENTLESS QUANTUM DOT EXCHANGE	14773991.6	3/13/2014	2970764
United States	Nanostructure-enhanced platelet binding and hemostatic structures	12720297	3/9/2010	8319002
United States	Resorbable nanoenhanced hemostatic structures and bandage materials	12329431	12/5/2008	8304595
United States	Light-Emitting Diode (LED) Devices Comprising Nanocrystals	13/748,416	1/23/2013	
United States	QUANTUM DOT FILMS, LIGHTING DEVICES, AND LIGHTING METHODS	14/612,935	2/3/2015	
United States	WHITE POINT UNIFORMITY IN DISPLAY DEVICES	15/098,608	4/14/2016	

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United States	QUANTUM DOT FILMS, LIGHTING DEVICES, AND LIGHTING METHODS	15/245,020	8/23/2016	
United States	HIGHLY LUMINESCENT CADMIUM-FREE NANOCRYSTALS WITH BLUE EMISSION	15/259,889	9/8/2016	
United States	LOW CADMIUM CONTENT NANOSTRUCTURE COMPOSITIONS AND USES THEREOF	15/441,729	2/24/2017	
United States	BACKLIGHT UNITS FOR DISPLAY DEVICES	15/478,566	4/4/2017	
United States	STABLE INP QUANTUM DOTS WITH THICK SHELL COATING AND METHOD OF PRODUCING THE SAME	15/497,404	4/26/2017	
United States	METHOD TO IMPROVE THE MORPHOLOGY OF CORE/SHELL QUANTUM DOTS FOR HIGHLY LUMINESCENT NANOSTRUCTURES	15/599,848	5/19/2017	
United States	AMBIENT LIGHT COLOR COMPENSATING DEVICE	15/600,031	5/19/2017	
United States	METHOD FOR SYNTHESIZING CORE SHELL NANOSTRUCTURES AT HIGH TEMPERATURES	15/615,565	6/6/2017	
United States	METHODS FOR BUFFERED COATING OF NANOSTRUCTURES	15/629,031	6/21/2017	
United States	METHODS FOR ENCAPSULATING NANOCRYSTALS AND RESULTING COMPOSITIONS	15/695,220	9/5/2017	
United States	ARCHITECTURAL WINDOW WITH BUILT-IN QLED LIGHTING	15/700,369	9/11/2017	
United States	RADIATION ABSORBING ELEMENT FOR INCREASING COLOR GAMUT OF QUANTUM DOT BASED DISPLAY DEVICES	15/788,346	10/19/2017	
United States	PROCESS FOR GROUP III-V SEMICONDUCTOR NANOSTRUCTURE SYNTHESIS AND COMPOSITIONS MADE USING SAME	15/792,815	10/25/2017	
United States	STABLE INP QUANTUM DOTS WITH THICK SHELL COATING AND METHOD OF PRODUCING THE SAME	15/793,735	10/25/2017	
United States	QUANTUM DOT LED WITH SPACER PARTICLES	15/824,701	11/28/2017	
United States	HIGHLY LUMINESCENT NANOSTRUCTURES AND METHODS OF PRODUCING SAME	15/852,249	12/22/2017	
United States	OPTICAL MEASUREMENT OF THIN FILMS	15/862,954	1/5/2018	

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United States	RAPID THICKENING OF AMINOSILICONE TO PROMOTE EMULSION STABILITY AND ADHESION OF UV-CURABLE QUANTUM DOT ENHANCEMENT FILM EMULSIONS	15/885,309	1/31/2018	
United States	LIGHT EMITTING DIODE (LED) DEVICES	15/910,342	3/2/2018	
United States	QUANTUM DOT BASED COLOR CONVERSION LAYER IN DISPLAY DEVICES	15/911,960	3/5/2018	
United States	METHOD FOR INCREASING THE LIGHT OUTPUT OF MICROLED DEVICES USING QUANTUM DOTS	15/935,507	3/26/2018	
United States	IN-SITU CROSSLINKING OF EMULSIFIED QUANTUM DOT-CONTAINING DOMAINS WITHIN A CARRIER RESIN	15/975,809	5/10/2018	
United States	SILICONE COPOLYMERS AS EMULSIFICATION ADDITIVES FOR QUANTUM DOT RESIN PREMIX	15/975,811	5/10/2018	
United States	ACID STABILIZATION OF QUANTUM DOT-RESIN CONCENTRATES AND PREMIXES	15/997,926	6/5/2018	
United States	PEG-BASED LIGANDS WITH ENHANCED DISPERSIBILITY AND IMPROVED PERFORMANCE	15/998,504	8/16/2018	
United States	THIOLATED HYDROPHILIC LIGANDS FOR IMPROVED QUANTUM DOT RELIABILITY IN RESIN FILMS	16/002,315	6/7/2018	
United States	HOMOGENEOUS ANAEROBICALLY STABLE QUANTUM DOT CONCENTRATES	16/015,582	6/22/2018	
United States	INP QUANTUM DOTS WITH GAP AND AIP SHELLS AND METHODS OF PRODUCING THE SAME	16/023,430	6/29/2018	
United States	QUANTUM DOT ENCAPSULATION TECHNIQUES	16/039,893	7/19/2018	
United States	NANOSTRUCTURE BASED DISPLAY DEVICES	16/108,319	8/22/2018	
United States	NANOSTRUCTURE BASED DISPLAY DEVICES	16/108,321	8/22/2018	
United States	USING MULTIPLE EXCITATION WAVELENGTHS IN NANOSTRUCTURE BASED DISPLAY DEVICES	16/108,922	8/22/2018	
United States	IN-LINE MIXING OF NANOSTRUCTURE PREMIXES FOR REAL-TIME WHITE POINT ADJUSTMENT	16/175,897	10/31/2018	
United States	QUANTUM DOT BASED COLOR CONVERSION LAYER IN DISPLAY DEVICES	16/176,889	10/31/2018	
United States	OPTICAL MEASUREMENT OF THIN FILMS	16/197,777	11/21/2018	

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United States	DECREASED PHOTON REABSORPTION IN EMISSIVE QUANTUM DOTS	62/638,533	3/5/2018	
United States	QDLED BASED ON RESONANT ENERGY TRANSFER EXCITATION OF QD EMISSIVE LAYER	62/670,201	5/11/2018	
United States	METHOD FOR SYNTHESIS OF BLUE-EMITTING ZnSe1-xTex ALLOY	62/677,853	5/30/2018	
United States	WAVELENGTH TUNING OF ZNSE QUANTUM DOTS USING IN3+ SALTS AS DOPANTS ALLOWING FOR CD-FREE ELECTROLUMINESCENT QD-LEDS WITH BLUE EMISSION	62/691,873	6/29/2018	
United States	PEG-BASED LIGANDS WITH ENHANCED DISPERSIBILITY AND IMPROVED PERFORMANCE	62/694,652	7/6/2018	
United States	METHODS OF IMPROVING EFFICIENCY OF DISPLAYS USING QUANTUM DOTS WITH INTEGRATED OPTICAL ELEMENTS	62/702,776	7/24/2018	
United States	QUANTUM DOTS WITH CHARGE-TRANSPORTING LIGANDS	62/720,507	8/21/2018	
United States	INCREASING COLOR GAMUT PERFORMANCE AND EFFICIENCY IN QUANTUM DOT COLOR CONVERSION LAYERS	62/725,689	8/31/2018	
United States	DISPLAY DEVICES WITH DIFFERENT LIGHT SOURCES IN PIXEL STRUCTURES	62/749,362	10/23/2018	
United States	METHODS FOR IMPROVING COLOR GAMUT COVERAGE IN DISPLAYS USING QUANTUM DOT COLOR CONVERSION LAYERS	62/764,773	8/16/2018	
United States	CADMIUM FREE REVERSE TYPE 1 NANOSTRUCTURES WITH IMPROVED BLUE LIGHT ABSORPTION FOR THIN FILM APPLICATIONS	62/784,218	12/21/2018	
United States	Organic Species that Facilitate Charge Transfer to or from Nanostructures	10/656,910	9/4/2003	6,949,206
United States	Nanocrystal Taggants	10/826,153	4/16/2004	7,917,298
United States	Organic Species that Facilitate Charge Transfer to or from Nanostructures	10/928,625	8/26/2004	7,572,393
United States	Nanocrystal Taggants	11/075,364	3/8/2005	7,912,653
United States	Organic Species that Facilitate Charge Transfer to or from Nanostructures	11/130,296	5/16/2005	7,572,395
United States	Organic Species that Facilitate Charge Transfer to or from Nanostructures	11/130,303	5/16/2005	7,438,833

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United States	Process for Group III-V Semiconductor nanostructure Synthesis and Compositions Made Using Same	11/178,257	7/8/2005	7,557,028
United States	Purification of nanocrystal solutions by chromatography	11/212,488	8/25/2005	7,794,600
United States	Nanostructured thin films and their uses	11/226,075	9/14/2005	7,391,018
United States	Process for group 10 metal nanostructure synthesis and compositions made using same	11/304,498	12/15/2005	8,088,483
United States	Electronic Grade Metal Nanostructures	11/506,769	8/18/2006	7,976,646
United States	Gate Electrode for Nonvolatile Memory Cell	12/121,591	5/15/2008	8,030,161
United States	Organic Species that Facilitate Charge Transfer to or from Nanostructures	12/206,935	9/9/2008	7,943,064
United States	Methods for encapsulating nanocrystals and resulting compositions	12/318,516	12/30/2008	8,343,575
United States	Non-fouling surfaces for reflective materials	12/432,264	4/29/2009	8,364,243
United States	Organic Species that Facilitate Charge Transfer to or from Nanostructures	12/459,574	7/2/2009	8,562,867
United States	Process for Group III-V Semiconductor nanostructure Synthesis and Compositions Made Using Same	12/475,772	6/1/2009	8,062,967
United States	Methods of generating liquidphobic surfaces	12/620,244	11/17/2009	8,540,889
United States	Functionalized Matrices for Dispersion of Nanostructures	12/799,813	4/29/2010	8,283,412
United States	Process for Group III-V Semiconductor nanostructure Synthesis and Compositions Made Using Same	13/268,208	10/7/2011	8,884,273
United States	Quantum dot films, lighting devices, and lighting methods	13/287,616	11/2/2011	9,199,842
United States	Non-fouling surfaces for reflective spheres	13/301,553	11/21/2011	8,414,957
United States	Non-fouling surfaces for reflective materials	13/301,564	11/21/2011	8,486,532
United States	Functionalized Matrices for Dispersion of Nanostructures	13/633,769	10/2/2012	8,618,212
United States	Methods for encapsulating nanocrystals and resulting compositions	13/684,782	11/26/2012	8,697,471
United States	Light-Emitting Diode (LED) Devices Comprising Nanocrystals	13/750,131	1/25/2013	9,677,001
United States	Silicone ligands for stabilizing quantum dot films	13/803,596	3/14/2013	9,139,770
United States	Highly Luminescent Nanostructures and Methods of Producing Same	13/917,570	6/13/2013	9,169,435
United States	Functionalized Matrixes for Dispersion of Nanostructures	14/082,853	11/18/2013	8,916,064

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United States	Methods for encapsulating nanocrystals and resulting compositions	14/194,996	3/3/2014	9,139,767
United States	Polyhedral Oligomeric Silsesquioxane Nanocrystal Stabilization Ligands	14/208,079	3/13/2014	9,133,394
United States	Alkyl-Acid Ligands for Nanocrystals	14/208,084	3/13/2014	9,260,655
United States	Method Solventless Quantum Dot Exchange	14/208,095	3/13/2014	9,005,480
United States	PROCESS FOR GROUP III-IV SEMICONDUCTOR NANOSTRUCTURE SYNTHESIS AND COMPOSITIONS MADE USING SAME	14/508,184	10/7/2014	9,469,538
United States	BLACKLIGHT UNIT FOR DISPLAY DEVICES	14/532,856	11/4/2014	9,927,649
United States	LIGHT-EMITTING DIODE (LED) DEVICES COMPRISING NANOCRYSTALS	14/626,764	2/19/2015	9,909,062
United States	HIGHLY LUMINESCENT NANOSTRUCTURES AND METHODS OF PRODUCING SAME	14/669,425	3/26/2015	9,685,583
United States	HIGHLY LUMINESCENT NANOSTRUCTURES AND METHODS OF PRODUCING SAME	14/669,436	3/26/2015	9,631,141
United States	SILICONE LIGANDS FOR QUANTUM DOTS	14/801,314	7/16/2015	9,969,844
United States	HIGHLY LUMINESCENT NANOSTRUCTURES AND METHODS OF PRODUCING SAME	14/867,583	9/28/2015	9,884,993
United States	PROCESS FOR GROUP III-V SEMICONDUCTOR NANOSTRUCTURE SYNTHESIS AND COMPOSITIONS MADE USING SAME	14/988,858	1/6/2016	9,688,534
United States	QUANTUM DOT FILMS, LIGHTING DEVICES, AND LIGHTING METHODS	15/018,512	2/8/2016	9,804,319
United States	BACKLIGHT UNITS FOR DISPLAY DEVICES	15/061,115	3/4/2016	9,658,489
United States	USE OF HETEROLEPTIC INDIUM HYDROXIDES AS PRECURSORS FOR INP NANOCRYSTALS	15/348,540	11/10/2016	10,029,972
United States	QUANTUM DOT BASED COLOR CONVERSION LAYER IN DISPLAY DEVICES	15/368,334	12/2/2016	10,128,417
United States	QUANTUM DOT ENCAPSULATION TECHNIQUES	15/368,344	12/2/2016	10,056,533
United States	INP QUANTUM DOTS WITH GAP AND ALP SHELLS AND METHODS OF PRODUCING THE SAME	15/406,227	1/13/2017	10,066,161
United States	PROCESS FOR GROUP III-V SEMICONDUCTOR NANOSTRUCTURE SYNTHESIS AND COMPOSITIONS MADE USING SAME	15/485,760	4/12/2017	9,884,763

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United States	Nanowire-based sensor configurations	11399218	4/6/2006	7910064
United States	Nano-chem-fet based biosensors	11874412	10/18/2007	7888292
United States	Method of fabricating gate configurations for an improved contacts in nanowire based electronic devices	12703043	2/9/2010	7871870
United States	Structures, systems and methods for joining articles and materials and uses therefor	11835908	8/8/2007	7651769
United States	Structures, systems and methods for joining articles and materials and uses therefor	11374906	3/14/2006	7344617
United States	Medical device applications of nanostructured surfaces	11330722	1/12/2006	7972616
United States	Medical device applications of nanostructured surfaces	11677680	2/22/2007	7803574
United States	Medical device applications of nanostructured surfaces	13096919	4/28/2011	8956637
United States	Nanowire capacitor and methods of making same	11525121	9/22/2006	7667296
United States	Nanofiber surfaces for use in enhanced surface area applications	10840794	5/5/2004	7579077
United States	Nano-chem-fet based biosensors	10683583	10/9/2003	7303875
United States	Structures, systems and methods for joining articles and materials and uses therefor	10828100	4/19/2004	7074294
United States	Structures, systems and methods for joining articles and materials and uses therefor	10661381	9/12/2003	7056409
United States	Core-shell-shell nanowire transistor and fabrication method	11779220	7/17/2007	7923310
United States	Core-shell-shell nanowire transistor and fabrication method	13050750	3/17/2011	8258499
United States	Integrated circuit device, manufacturing method thereof, and display device	11802706	5/24/2007	8129768

Country	Title	App. No.	App. Date	Patent Number
Vietnam	Quantum dot film, making method thereof and quantum dot material	20153020	1/16/2014	

Licensed Patents:

Country	Title	App. No.	App. Date	Patent No.
Australia	Shaped nanocrystal particles and methods for making the same	2002357013	11/22/2002	2002357013
Australia	Semiconductor Liquid Crystal Composition and Method for Making the Same	2002365267	10/23/2002	2002365267
Australia	Semiconductor-Nanocrystal/Conjugated Polymer Thin Films	2003218304	3/19/2003	2003218304
Australia	Semiconductor Nanocrystal Composite	2002326920	9/17/2002	2002326920
Australia	Nanocrystal structures	2002366091	11/18/2002	2002366091
Australia	Light emitting device including semiconductor nanocrystals	2003218452	3/28/2003	2003218452
Australia	Light emitting device including semiconductor nanocrystals	2009200659	3/28/2003	2009200659
Austria	Water-Soluble Fluorescent Semiconductor Nanocrystals	99948273.0	9/17/1999	1116036
Belgium	Water-Soluble Fluorescent Semiconductor Nanocrystals	99948273.0	9/17/1999	1116036
Canada	Semiconductor nanocrystal probes for biological applications	2,366,303	2/28/2000	2,366,303
Canada	Semiconductor Liquid Crystal Composition and Method for Making the Same	2,464,832	10/23/2002	2,464,832
Canada	Shaped nanocrystal particles and methods for making the same	2,468,789	11/22/2002	2,468,789
Canada	Semiconductor-Nanocrystal/Conjugated Polymer Thin Films	2,479,683	3/19/2003	2,479,683
Canada	Light emitting device including semiconductor nanocrystals	2,934,970	3/28/2003	
Canada	Highly Luminescent Color-Selective Nano-Crystalline Materials	2,309,967	11/10/1998	2,309,967
Canada	Inventory Control	2,344,145	9/17/1999	2,344,145
Canada	Biological Applications of Semiconductor Nanocrystals	2,344,478	9/17/1999	2,344,478

Country	Title	App. No.	App. Date	Patent No.
Canada	Water-Soluble Fluorescent Semiconductor Nanocrystals	2,344,479	9/17/1999	2,344,479
Canada	Tellurium-Containing Nanocrystalline Materials	2,374,337	7/26/2000	2,374,337
Canada	Inorganic Chromaophore Bioconjugates	2,403,620	3/20/2001	2,403,620
Canada	Preparation of Nanocrystallites	2,431,153	12/6/2001	2,431,153
Canada	Semiconductor Nanocrystal Composite	2,460,796	9/17/2002	2,460,796
Canada	Light emitting device including semiconductor nanocrystals	2,480,518	3/28/2003	2,480,518
China P.R.	Shaped nanocrystal particles and methods for making the same	2827534.9	11/22/2002	100423215C
China P.R.	Semiconductor-Nanocrystal/Conjugated Polymer Thin Films	3806320.4	3/19/2003	100380684C
China P.R.	Light emitting device including semiconductor nanocrystals	3812070.4	3/28/2003	1656856B
China P.R.	Large-area nanoenabled macroelectronic substrates and uses therefor	20035485	2/19/2003	1745468
China P.R.	Post-deposition encapsulation of nanostructures: compositions, devices and systems incorporating same post-deposition encapsulation of nanometer structure: compositions, devices and systems incorporating same	200580018708	6/7/2005	101426639
Cyprus	Water-Soluble Fluorescent Semiconductor Nanocrystals	99948273.0	9/17/1999	1116036
Denmark	Water-Soluble Fluorescent Semiconductor Nanocrystals	99948273.0	9/17/1999	1116036
EPC	Shaped nanocrystal particles and methods for making the same	02805529.1	11/22/2002	
EPC	Semiconductor-Nanocrystal/Conjugated Polymer Thin Films	03714299.9	3/19/2003	
EPC	Semiconductor nanocrystal probes for biological applications	09014899.0	2/28/2000	2180321
EPC	Semiconductor nanocrystal probes for biological applications	10010743.2	2/28/2000	2287614
EPC	Semiconductor Liquid Crystal Composition and Method for Making the Same	2806436.8	10/23/2002	1446695
EPC	Quantum Dot White and Colored Light Emitting Diodes	10180634.7	4/1/1999	
EPC	Highly Luminescent Color-Selective Nano-Crystalline Materials	10181778.1	11/10/1998	

Country	Title	App. No.	App. Date	Patent No.
EPC	Highly Luminescent Color-Selective Nano-Crystalline Materials	10181781.5	11/10/1998	
EPC	Light emitting device including semiconductor nanocrystals	12171383.8	3/28/2003	
EPC	Light emitting device including semiconductor nanocrystals	14183926.6	9/8/2014	
EPC	Tellurium-Containing Nanocrystalline Materials	00950729.4	7/26/2000	1250474
EPC	Inorganic Particle Bioconjugates	01924209.8	3/20/2001	1266223
EPC	Semiconductor Nanocrystal Composite	02761673.9	9/17/2002	1438614
EPC	Quantum Dot White and Colored Light Emitting Diodes	10180612.3	4/1/1999	2309557 B1
EPC	Preparation of Nanocrystallites	11182379.5	12/6/2001	2399733
EPC	Preparation of Nanocrystallites	1995322.3	12/6/2001	1377438
EPC	Nanocrystal structures	2803649.9	11/18/2002	1463628
EPC	Creating Photon Atoms	3751805.7	7/23/2003	1540784
EPC	Biological Applications of Semiconductor Nanocrystals	99307393.1	9/17/1999	990903
EPC	Quantum Dot White and Colored Light Emitting Diodes	99915206.9	4/1/1999	1070355
EPC	Water-Soluble Fluorescent Semiconductor Nanocrystals	99948273.0	9/17/1999	1116036
EPC	Nanocomposites	2003749453	9/4/2003	1537445
EPC	Nanowire-based membrane electrode assemblies for fuel cells	2005853082	12/6/2005	1829141
EPC	Nanowire structures comprising carbon	2006838053	11/20/2006	1952467
EPC	Nanowire-based membrane electrode assemblies for fuel cells	2011193293	12/6/2005	2432058
Finland	Water-Soluble Fluorescent Semiconductor Nanocrystals	99948273.0	9/17/1999	1116036
France	Semiconductor nanocrystal probes for biological applications	10010743.2	2/28/2000	2287614
France	Semiconductor Liquid Crystal Composition and Method for Making the Same	2806436.8	10/23/2002	1446695
France	Tellurium-Containing Nanocrystalline Materials	0950729.4	7/26/2000	1250474

Country	Title	App. No.	App. Date	Patent No.
France	Quantum Dot White and Colored Light Emitting Diodes	10180612.3	4/1/1999	2309557 B1
France	Inorganic Particle Bioconjugates	1924209.8	3/20/2001	1266223
France	Semiconductor Nanocrystal Composite	2761673.9	9/17/2002	1438614
France	Biological Applications of Semiconductor Nanocrystals	99307393.1	9/17/1999	990903
France	Water-Soluble Fluorescent Semiconductor Nanocrystals	99948273.0	9/17/1999	1116036
Germany	Semiconductor nanocrystal probes for biological applications	10010743.2	2/28/2000	60048188.3
Germany	Semiconductor Liquid Crystal Composition and Method for Making the Same	2806436.8	10/23/2002	60218332.4-08
Germany	Quantum Dot White and Colored Light Emitting Diodes	10180612.3	4/1/1999	2309557 B1
Germany	Inorganic Particle Bioconjugates	1924209.8	3/20/2001	60128458.5-08
Germany	Preparation of Nanocrystallites	1995322.3	12/6/2001	60146998.4
Germany	Semiconductor Nanocrystal Composite	2761673.9	9/17/2002	60232350.9
Germany	Nanocrystal structures	2803649.9	11/18/2002	60227840.6
Germany	Creating Photon Atoms	3751805.7	7/23/2003	60332130.5-08
Germany	Biological Applications of Semiconductor Nanocrystals	69905832.5-08	9/17/1999	990903
Germany	Tellurium-Containing Nanocrystalline Materials	950729.4	7/26/2000	60023559.9
Germany	Water-Soluble Fluorescent Semiconductor Nanocrystals	99948273	9/17/1999	69919368.0-08
Great Britain	Semiconductor nanocrystal probes for biological applications	10010743.2	2/28/2000	2287614
Great Britain	Semiconductor Liquid Crystal Composition and Method for Making the Same	2806436.8	10/23/2002	1446695
Great Britain	Quantum Dot White and Colored Light Emitting Diodes	10180612.3	4/1/1999	2309557 B1
Great Britain	Inorganic Particle Bioconjugates	1924209.8	3/20/2001	1266223
Great Britain	Preparation of Nanocrystallites	1995322.3	12/6/2001	1377438
Great Britain	Semiconductor Nanocrystal Composite	2761673.9	9/17/2002	1438614
Great Britain	Nanocrystal structures	2803649.9	11/18/2002	1463628
Great Britain	Creating Photon Atoms	3751805.7	7/23/2003	1540784
Great Britain	Tellurium-Containing Nanocrystalline Materials	950729.4	7/26/2000	1250474
Great Britain	Semiconductor Nanocrystal Labels	9922072.5	9/17/1999	2342651

Country	Title	App. No.	App. Date	Patent No.
Great Britain	Water-Soluble Fluorescent Semiconductor Nanocrystals	99948273.0	9/17/1999	1116036
Hong Kong	Semiconductor-Nanocrystal/Conjugated Polymer Thin Films	4110036.1	3/19/2003	
India	Semiconductor-Nanocrystal/Conjugated Polymer Thin Films	2539/DELNP/2004	3/19/2003	
India	Light emitting device including semiconductor nanocrystals	2865/DELNP/2004	3/28/2003	269131
Indonesia	Shaped nanocrystal particles and methods for making the same	W-00200401396	11/22/2002	W-00200401396
Ireland	Semiconductor Liquid Crystal Composition and Method for Making the Same	2806436.8	10/23/2002	1446695
Ireland	Water-Soluble Fluorescent Semiconductor Nanocrystals	99948273.0	9/17/1999	1116036
Israel	Shaped nanocrystal particles and methods for making the same	162228	11/22/2002	162228
Italy	Semiconductor Liquid Crystal Composition and Method for Making the Same	2806436.8	10/23/2002	1446695
Italy	Semiconductor Nanocrystal Composite	2761673.9	9/17/2002	1438614
Italy	Tellurium-Containing Nanocrystalline Materials	950729.4	7/26/2000	1250474
Italy	Water-Soluble Fluorescent Semiconductor Nanocrystals	99948273.0	9/17/1999	1116036
Japan	Semiconductor Nanocrystal probes for biological application	2000-605212	2/28/2000	4601828
Japan	Shaped nanocrystal particles and methods for making the same	2003-555576	11/22/2002	4980555
Japan	Semiconductor Liquid Crystal Composition and Method for Making the Same	2003-560633	10/23/2002	4411078
Japan	QUANTUM DOT WHITE AND COLORED LIGHT-EMITTING DEVICES	2015-254999	2/28/2011	
Japan	Quantum Dot White and Colored Light Emitting Diodes	2000-541740	4/1/1999	5031141
Japan	Biological Applications of Semiconductor Nanocrystals	2000-571252	9/17/1999	4425470
Japan	Water-Soluble Fluorescent Semiconductor Nanocrystals	2000-571265	9/17/1999	4404489
Japan	Inventory Control	2000-574022	9/17/1999	4536927
Japan	Tellurium-Containing Nanocrystalline Materials	2001-512953	7/26/2000	5165824
Japan	Inorganic Chromaophore Bioconjugates	2001-569490	3/20/2001	4951184

Country	Title	App. No.	App. Date	Patent No.
Japan	Preparation of Nanocrystallites	2002-548750	12/6/2001	4219164
Japan	Semiconductor Nanocrystal Composite	2003-529118	9/17/2002	4383865
Japan	Nanocrystal structures	2003-545469	11/18/2002	4703112
Japan	Light emitting device including semiconductor nanocrystals	2003-581553	3/28/2003	4948747
Japan	Light emitting device including semiconductor nanocrystals	2010-170272	7/29/2010	5463234
Japan	Tellurium-Containing Nanocrystalline Materials	2011-019862	7/26/2000	5513421
Japan	PREPOLYMER COMPOSITION, METHOD FOR PREPARING LIGHT-EMITTING DEVICE, AND LIGHT-EMITTING DEVICE	2014-096216	5/7/2014	6092809 B2
Japan	The integration stacking display using a nanowire transistor	2005500327	9/30/2003	04669784
Japan	A large area nano possible macro electronics board substrate and its use	2005500333	9/30/2003	05336031
Japan	The method, apparatus, and composition which deposit a nano structure and are orientated	2006528061	9/15/2004	04927542
Japan	The over lyophobic surface, its producing method, and a use	2006532490	4/27/2004	04871726
Japan	Fuel cell	2007545554	12/6/2005	05277451
Japan	The nanowire structure containing carbon	2008541404	11/20/2006	05474352
Japan	The porous substrate, the product, the system, the composition, its use, and the manufacturing method containing a nanofiber	2009526640	8/22/2007	05081916
Japan	The method for forming a board substrate element	2010537943	12/9/2008	05496105
Japan	リチウムイオン電池のシリコンナノ構造活物質及びそれに関するプロセス、組成物、構成要素及びデバイス the process regarding silicon silicone nanostructure active substance and it, the composition, component, and device of a lithium ion battery	2014534634	10/2/2012	06385822
Japan	The memory device in which a nano response compatibility is possible, and an anisotropic electric charge conveyance array	2007502948	3/9/2005	04871255
Japan	The device containing the formation method of a nano structure single layer, a formation device, and the starting single layer	2007527682	6/7/2005	05000510

Country	Title	App. No.	App. Date	Patent No.
Japan	The boardsubstrate which arranged the sequencelarrangement method of a microstructure, and the microstructure, an integrated circuit device, and a display element	2007102848	4/10/2007	04381428
Japan	A nanowire transistor and its manufacturing method	200890984	3/31/2008	05117906
Japan	The sequencelarrangement method and the deposition method of nanowire	2009533413	11/9/2007	05009993
Japan	The membrane electrode assembly which has an interface layer	2011533334	10/22/2009	05484477
Japan	The electrochemical catalyst for fuel cells	2011533335	10/22/2009	05497049
Malaysia	Semiconductor-Nanocrystal/Conjugated Polymer Thin Films	PI20030954	3/19/2003	MY-144626-A
Netherlands	Water-Soluble Fluorescent Semiconductor Nanocrytals	99948273.0	9/17/1999	1116036
Singapore	Shaped nanocrystal particles and methods for making the same	200403122-5	11/22/2002	105051
Singapore	Semiconductor-Nanocrystal/Conjugated Polymer Thin Films	200404975-5	3/19/2003	107216
Singapore	Light emitting device including semiconductor nanocrystals	200405340-1	3/28/2003	124426
South Korea	Semiconductor-Nanocrystal/Conjugated Polymer Thin Films	10-2004-7014717	3/19/2003	10-1070267
South Korea	Light emitting device including semiconductor nanocrystals	10-2004-7015324	3/28/2003	10-1058483
South Korea	Integrated displays using nanowire transistor the integrated display using nanowire transistor.	20057005419	3/29/2005	1043578
South Korea	Large-area nanoenabled macroelectronic substrates and uses therefor the large size nano enable macro printed circuit board and use.	20057005436	3/29/2005	1191632
South Korea	System and process for producing nanowire composites and electronic substrates therefrom system and process for producing nanowire composite sand electronic substrates therefrom.	20067002377	2/3/2006	1132076
South Korea	Methods, devices and compositions for depositing and orienting nanostructures the method of aligning with the deposition nanostructures, and the apparatus and composition.	20067008013	4/25/2006	1126899

Country	Title	App. No.	App. Date	Patent No.
South Korea	Nanowire structures comprising carbon the nano wiring structure including carbon	20087015163	11/20/2006	1390619
South Korea	Nanostructured materials for battery applications the nano-structured material for the battery application.	20117030289	5/19/2010	
South Korea	Core-shell-shell nanowire transistor and fabrication method thereof core ? Shell ? Shell nanowire transistor and manufacturing method thereof.	20107002903	7/16/2008	1133386
Spain	Water-Soluble Fluorescent Semiconductor Nanocrystals	99948273.0	9/17/1999	1116036
Sweden	Water-Soluble Fluorescent Semiconductor Nanocrystals	99948273.0	9/17/1999	1116036
Switzerland	Inorganic Particle Bioconjugates	1924209.8	3/20/2001	1266223
Switzerland	Biological Applications of Semiconductor Nanocrystals	99307393.1	9/17/1999	990903
Switzerland	Water-Soluble Fluorescent Semiconductor Nanocrystals	99948273.0	9/17/1999	1116036
Taiwan	Semiconductor-Nanocrystal/Conjugated Polymer Thin Films	92106081	3/19/2003	I245819
Taiwan	Applications of nano-enabled large area macroelectronic substrates incorporating nanowires and nanowire composites	2003127018	9/30/2003	I319201
Taiwan	Large-area nanoenabled macroelectronic substrates and uses therefor	2003127075	9/30/2003	I309845
Taiwan	Methods, devices and compositions for depositing and orienting nanostructures	2004128549	9/21/2004	I375730
Taiwan	Nanowire structures comprising carbon	2006143081	11/21/2006	I436942
Taiwan	Methods of processing nanocrystals, and compositions, devices and systems including same	2004126497	9/2/2004	I463713
Taiwan	Method and system for printing aligned nanowires a	2008116662	5/6/2008	I359784
United States	Electronic displays using optically pumped luminescent semiconductor nanocrystals	09/324,149	6/2/1999	6,864,626
United States	Process for forming shaped group II-VI semiconductor nanocrystals, and product formed using process	09/499,095	2/4/2000	6,225,198
United States	Process for forming shaped group III-V semiconductor nanocrystals, and product formed using process	09/499,096	2/4/2000	6,306,736
United States	Process for making surfactant capped nanocrystals	09/702,219	10/30/2000	6,440,213
United States	Process for making surfactant capped metal oxide nanocrystals, and products produced by the process	09/721,126	11/22/2000	6,984,369

Country	Title	App. No.	App. Date	Patent No.
United States	Semiconductor Liquid Crystal Composition and Methods for Making the Same	10/280,135	10/23/2002	6,884,478
United States	Shaped nanocrystal particles and methods for making the same	10/301,510	11/20/2002	6,855,202
United States	Semiconductor-Nanocrystal/Conjugated Polymer Thin Films	10/392,668	3/18/2003	7,777,303
United States	Shaped nanocrystal particles and methods for working the same	10/980,472	11/2/2004	7,311,774
United States	Semiconductor-Nanocrystal/Conjugated Polymer Thin Films	11/056,430	2/11/2005	8,753,916
United States	Electronic displays using optically pumped luminescent semiconductor nanocrystals	11/701,879	2/2/2007	7,696,684
United States	Shaped nanocrystal particles and methods for making the same	11/869,585	10/9/2007	8,062,421
United States	Electronic displays using optically pumped luminescent semiconductor nanocrystals	12/471,889	5/26/2009	8,026,661
United States	Electronic displays using optically pumped luminescent semiconductor nanocrystals	13/211,664	8/17/2011	8,648,524
United States	Electronic displays using optically pumped luminescent semiconductor nanocrystals	13/215,520	8/23/2011	8,678,871
United States	Shaped nanocrystal particles and methods for making the same	13/267,170	10/6/2011	8,608,848
United States	ELECTRONIC DISPLAYS USING OPTICALLY PUMPED LUMINESCENT SEMICONDUCTOR NANOCRYSTALS	14/223,890	3/24/2014	9,063,363
United States	ELECTRONIC DISPLAYS USING OPTICALLY PUMPED LUMINESCENT SEMICONDUCTOR NANOCRYSTALS	14/629,808	2/24/2015	9,182,621
United States	ELECTRONIC DISPLAYS USING OPTICALLY PUMPED LUMINESCENT SEMICONDUCTOR NANOCRYSTALS	14/935,765	11/9/2015	9,671,536
United States	Polarization Label for Measuring 3-Dimensional Orientation	09/310,009	5/11/1999	6,696,299
United States	Preparation of Nanocrystallites	09/732,013	12/8/2000	6,576,291
United States	Optical Amplifiers and Lasers	09/805,435	3/14/2001	6,819,692
United States	Inorganic Particle Conjugates	09/811,824	3/20/2001	6,921,496


Country	Title	App. No.	App. Date	Patent No.
United States	Biological Applications of Quantum Dots	09/832,959	4/12/2001	6,855,551
United States	Creating Photon Atoms	10/200,582	7/23/2002	7,319,709
United States	Semiconductor nanocrystal composite	10/244,545	9/17/2002	7,190,870
United States	Nanocrystal structures	10/294,742	11/15/2002	7,150,910
United States	Light emitting device including semiconductor nanocrystals	10/400,908	3/28/2003	7,700,200
United States	Preparation of Nanocrystallites	10/455,629	6/6/2003	6,821,337
United States	Method for Measuring 3-Dimensional Orientation of a photoactive moiety	10/742,608	12/19/2003	7,049,148
United States	Preparation of Nanocrystallites	10/959,992	10/8/2004	7,138,098
United States	Inorganic Particle Conjugates	11/080,946	3/16/2005	7,470,379
United States	Composite Material Including Nanocrystals and Methods of Making	11/129,329	5/16/2005	7,326,365
United States	Nanocrystal structures	11/594,732	11/9/2006	7,470,473
United States	Quantum Dot White and Colored Light-Emitting Devices	11/787,152	4/13/2007	7,692,373
United States	Composite material including nanocrystals and methods of making	11/955,224	12/12/2007	7,690,842
United States	Nanocrystal structures	12/275,800	11/21/2008	8,121,162
United States	Inorganic Particle Conjugates	12/318,028	12/19/2008	8,034,259
United States	Inorganic Particle Conjugates	13/229,177	9/9/2011	8,192,646
United States	Quantum Dot White and Colored Light-Emitting Devices	13/465,553	5/7/2012	8,362,684
United States	Nanofiber surface based capacitors	11/840,414	8/17/2007	7,466,533
United States	Nanofiber surface based capacitors	12/970,774	12/16/2010	RE43868
United States	Method for aligning microscopic structures and substrate having microscopic structures aligned, as well as integrated circuit apparatus and display element	12/081,018	4/9/2008	8,216,440
United States	Nanowire transistor and method for forming same	11/732,675	4/4/2007	7,935,599

Exhibit C

U.S. AND NON U.S. TRADEMARKS AND TRADEMARK APPLICATIONS

Country	Trademark	App. No. App. Date	Reg. No. Reg. Date	Status
Australia	NANOSYS	1018851 06-SEP-2004	1018851 06-SEP-2004	Registered
Canada	NANOSYS	1229099 30-AUG-2004	TMA884487 21-AUG-2014	Registered
China	NANOSYS HYPERION	32314772 18-JUL-2018		Pending
China	NANOSYS HYPERION	32314773 18-JUL-2018		Pending
China	TRUEQ	23279288 24-MAR-2017		Pending
China	QDEF	15692163 14-NOV-2014	15692163 28-DEC-2015	Registered
China	NANOSYS	4263088 10-SEP-2004	4263088 14-FEB-2007	Registered
China	NANOSYS	4263086 10-SEP-2004	4263086 21-FEB-2008	Registered
China	NANOSYS	4263087 10-SEP-2004	4263087 14-FEB-2007	Registered
China	NANOSYS	4263089 10-SEP-2004	4263089 21-FEB-2009	Registered
China	QDOG		1407965 06-DEC-2018	Statement of Grant of Protection Issued
EU trade marks	NANOSYS	4000436 25-AUG-2004	4000436 30-JAN-2008	Registered
India	NANOSYS	1305734 30-AUG-2004	Rnw 30-AUG-2014	Registered
International Register	QDOG		1407965 04-APR-2018	Registered Protection claimed in China, Japan, South Korea
Japan	HYPERION	2016-131213 21-NOV-2016	5995672 10-NOV-2017	Registered

Country	Trademark	App. No. App. Date	Reg. No. Reg. Date	Status
Japan	QDEF	2014-093912 07-NOV-2014	5767212 29-MAY-2015	Registered
Japan	NANOSYS	2004-079473 27-AUG-2004	5092250 16-NOV-2007	Registered
Japan	QDOG	1407965 04-APR-2018		Extension of Protection Pending
Singapore	NANOSYS	T0414950Z 07-SEP-2004	T0414950Z 07-SEP-2004	Registered
Singapore	NANOSYS	T0414954B 07-SEP-2004	T0414954B 07-SEP-2004	Registered
Singapore	NANOSYS	T0414955J 07-SEP-2004	T0414955J 07-SEP-2004	Registered
Singapore	NANOSYS	T0414949F 07-SEP-2004	T0414949F 07-SEP-2004	Registered
Singapore	NANOSYS	T0414952F 07-SEP-2004	T0414952F 07-SEP-2004	Registered
Singapore	NANOSYS	T0414953D 07-SEP-2004	T0414953D 07-SEP-2004	Registered
South Korea	HYPERION	40-2016-0101808 21-NOV-2016	401263304 23-JUN-2017	Registered
South Korea	QDEF	40-2014-0075295 07-NOV-2014	4011167030000 08-JUL-2015	Registered
South Korea	NANOSYS	45-2004-0003078 30-AUG-2004	4500151350000 08-FEB-2006	Registered
South Korea	QDOG	1407965 04-APR-2018		Extension of Protection Pending
Taiwan	QDOG	107017882 23-MAR-2018		Pending
Taiwan	HYPERION	105069475 21-NOV-2016	01860444 16-AUG-2017	Registered
Taiwan	QDEF	103064251 07-NOV-2014	01722283 16-AUG-2015	Registered
Taiwan	NANOSYS	093039915 27-AUG-2004	01222123 01-AUG-2006	Registered

Country	Trademark	App. No. App. Date	Reg. No. Reg. Date	Status
U.S. Federal	QDOG	87653993 20-OCT-2017		Allowed(Pending) Intent To Use
U.S. Federal	TRUEQ	87353034 28-FEB-2017		Allowed(Pending) Intent To Use
U.S. Federal	HYPERION	87045185 20-MAY-2016	5402373 13-FEB-2018	Registered
U.S. Federal	QD-BLU	85164648 29-OCT-2010	4656477 16-DEC-2014	Registered
U.S. Federal	QDEF	85164666 29-OCT-2010	4560574 01-JUL-2014	Registered
U.S. Federal	QUANTUMRAIL	77785291 20-JUL-2009	4364968 09-JUL-2013	Registered
U.S. Federal	NANOSYS	76387862 26-MAR-2002	3676786 01-SEP-2009	Registered
U.S. Federal	QDMATRIX	85032152 06-MAY-2010	4293546 19-FEB-2013	Registered Supplemental Register
U.S. Federal	Design Only 	78149021 30-JUL-2002	3588877 10-MAR-2009	Renewed in 2018