## 505668017 09/12/2019

# PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5714824

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

### **CONVEYING PARTY DATA**

Name	Execution Date
SACHIT GROVER	04/26/2018
CHUNGHO LEE	12/10/2018
XIAOPING LI	05/03/2018
DINGYUAN LU	04/25/2018
ROGER MALIK	12/10/2018
GANG XIONG	04/25/2018

### **RECEIVING PARTY DATA**

Name:	FIRST SOLAR, INC.
Street Address:	350 WEST WASHINGTON STREET
Internal Address:	6TH FLOOR
City:	TEMPE
State/Country:	ARIZONA
Postal Code:	85281

### **PROPERTY NUMBERS Total: 1**

Property Type	Number
Application Number:	16488808

### **CORRESPONDENCE DATA**

**Fax Number:** (419)255-9639

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.

**Phone:** 4192555900

**Email:** MST@mstfirm.com

Correspondent Name: MACMILLAN, SOBANSKI & TODD, LLC

Address Line 1: 720 WATER STREET

Address Line 2: ONE MARITIME PLAZA, FIFTH FLOOR

Address Line 4: TOLEDO, OHIO 43604

ATTORNEY DOCKET NUMBER:	58957-US-PCT
NAME OF SUBMITTER:	RYAN H. BOGGS
SIGNATURE:	/Ryan H. Boggs/
DATE SIGNED:	09/12/2019

505668017 PATENT REEL: 050352 FRAME: 0527

# Total Attachments: 9 source=2019-09-10\_Assignment\_58957-US-PCT#page1.tif source=2019-09-10\_Assignment\_58957-US-PCT#page2.tif source=2019-09-10\_Assignment\_58957-US-PCT#page3.tif source=2019-09-10\_Assignment\_58957-US-PCT#page4.tif source=2019-09-10\_Assignment\_58957-US-PCT#page5.tif source=2019-09-10\_Assignment\_58957-US-PCT#page6.tif source=2019-09-10\_Assignment\_58957-US-PCT#page7.tif source=2019-09-10\_Assignment\_58957-US-PCT#page8.tif source=2019-09-10\_Assignment\_58957-US-PCT#page8.tif

PATENT REEL: 050352 FRAME: 0528

### ASSIGNMENT BY INVENTORS

**THIS ASSIGNMENT** is made by Sachit Grover, Chungho Lee, Xiaoping Li, Dingyuan Lu, Roger Malik, and Gang Xiong (hereinafter referred to as "Assignors"), each having an address C/O 28101 Cedar Park Boulevard, Perrysburg, Ohio 43551, USA;

WHEREAS, Assignors have invented certain new and useful improvements in THIN FILM STACKS FOR GROUP V DOPING, PHOTOVOLTAIC DEVICES INCLUDING THE SAME, AND METHODS FOR FORMING PHOTOVOLTAIC DEVICES WITH THIN FILM STACKS set forth in an International Application for Letters Patent under the Patent Cooperation Treaty ("PCT"), already filed on February 27, 2018 as International Application No. PCT/US2018/019848; and

WHEREAS, FIRST SOLAR, INC., a Corporation organized under and pursuant to the laws of Delaware, having its principal place of business at First Solar, Inc., 350 West Washington Street, 6<sup>th</sup> Floor, Tempe, Arizona 85281 (hereinafter referred to as "Assignee"), is desirous of acquiring the entire right, title and interest in and to said inventions and said International Application for Letters Patent under the PCT, and in and to any Letters Patent of any Contracting State of the PCT to be obtained therefore and thereon.

NOW, THEREFORE, in accordance with Intellectual Property provisions of the employment agreement previously executed by and between Assignee and Assignors, and for other good and sufficient consideration, the receipt of which is hereby acknowledged, Assignors have sold, assigned, transferred and set over, and by these presents do sell, assign, transfer and set over, unto Assignee, its successors, legal representatives and assigns, the entire right, title, and interest in and to the above-mentioned inventions and International Application for Letters Patent under the PCT, and in and to any and all applications for Letters Patent that arise from said above-mentioned inventions and International Application, and in and to any and all direct and indirect divisions, continuations and continuations-in-part of said applications, and in and to any and all Letters Patent in any countries which may be granted therefore and thereon, and reissues, reexaminations and extensions of said Letters Patent, and all rights under the International Convention for the

Page 1 of 9

Protection of Industrial Property including all rights of priority, the same to be held and enjoyed by Assignee, for its own use and benefit and the use and benefit of its successors, legal representatives and assigns, to the full end of the term or terms for which Letters Patent may be granted and/or extended, as fully and entirely as the same would have been held and enjoyed by Assignors, had this sale and assignment not been made.

AND for the same consideration, Assignors hereby represent and warrant to Assignee, its successors, legal representatives and assigns, that, at the time of execution and delivery of these presents, except for any rights, titles, and/or interests that have arisen to Assignee under law or that have already been transferred to Assignee, Assignors are the sole and lawful owners of the entire right, title, and interest in and to the said inventions and International Application for Letters Patent above-mentioned, and that the same are unencumbered, and that Assignors have good and full right and lawful authority to sell and convey the same in the manner herein set forth.

AND for the same consideration, Assignors hereby covenant and agree to and with Assignee, its successors, legal representatives and assigns, that Assignors will sign all papers and documents, take all lawful oaths and do all acts necessary or required to be done for the procurement, maintenance, enforcement, and defense of any Letters Patent and applications for Letters Patent for said inventions, without charge to Assignee, its successors, legal representatives and assigns, whenever counsel of Assignee, or counsel of its successors, legal representatives and assigns, shall advise; that any proceeding in connection with said inventions, or said International Application for Letters Patent, or any proceeding in connection with any Letters Patent or applications for Letters Patent for said inventions in any country, including but not limited to interference proceedings, is lawful and desirable; or, that any division, continuation or continuation-in-part of any application for Letters Patent, or any reissue, reexamination or extension of any Letters Patent, to be obtained thereon, is lawful and desirable.

AND Assignors hereby request the Commissioner of Patents of the United States of America and the empowered officials of all other governments to issue all said Letters Patent to Assignee, as Assignee of said inventions and the Letters Patent to be issued thereon, for the sole use and benefit of Assignee, its successors, legal representatives and assigns.

Page 2 of 9

**Docket # 58957-WO-PCT** 

**AND** Assignors hereby grant the following individuals the power to insert on this Assignment any further identification which may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office, or the equivalent office of any other government, for recordation of this document:

# MACMILLAN, SOBANSKI & TODD, LLC

All practitioners at United States Patent and Trademark Office Customer Number 109944.

**AND** Assignors acknowledge an obligation of assignment of this invention to Assignee at the time the invention was made.

Page 3 of 9

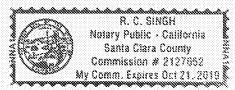
		4 (gozy)	M=	
			GROVER	
Date: 4/26/2018	B			
United States of America				
State of County of	s	<b>S.:</b>		
On this opersonally came	SACHIT GROVER	to me known to	, before me o be the individu	ial
described in and who exe of the same.	cuted the foregoing inst	rument, and acknowledg	ged execution	
+ 22 - 17 - 3 - 1 - 1 - 2 - 1		Notary Public		***************************************
	*	long this certificate vendes only the identity of the indi is attacked, and not the truthfulness, accuracy, or valid	and the same of th	
·········E.	State of California, County of Sansa Cla	ra ks. On <i>04/26/20/8</i> before one R.C. Se	<b>\$</b>	
	Notary Public, personally appeared	SA 447 SLACE (statements) where manely is	Anathropologica.	
	and the second of the second o	sq to use that helphelppsh exstrated the same in help earned executors in section becomedal earns, inerestal of		
	Section 20 April 20 A	signature(s) on the instrument the person(s), or the e	** * *	
		e instrument, I certify under PESALTY OF FERRATT un urragnaph is true and correct. VATTRESS my hund and o		
				<u></u>
		R. C. SINGH	7 6//	Sec
		Commission # 2127652 Notary Public - California		
		Santa Clará County		

Date: 1	2/10/2018		
United States of A State of	merica	) ) ss.;	
County of		)	
On this	day of	9	, before me
personally came		CHUNGHO LEE	, to me known to be the
individual describe execution of the sa		executed the foregoing ins	trument, and acknowledged
		Notary F	Public

A notary public or other officer completing this cortificate verifies only the identity of the individual who aspect the document to which this certificate is attached, and not the tretificibers, according, or validity of that document.

State of California, County of Santa Clara Ins. On \(\frac{12/9/California \) before me R.C. Singh, stockary Problet, percursally appeared \(\frac{CHUUGHO}{CHUUGHO}\) \(\frac{1}{2}\) before me R.C. Singh, stockary Problet, percursally and an action-indication problems to be the person(s) whose name(s) is/are subscribed in the existin instrument and action-indication me that he/she/fitney executed the soon in his/her/their authorized capacity(ies), and that by ins/her/their signature(s) on the instrument in person(s), or the entity open behalf of which the person(s) acted, executed the instrument. I certify under MRATY OF KRUSY under the laws of the

State of California that the Europeans paragraph is tree and cornect. WITHESS my hand and official real.



Page 5 of 9

	***************************************	XIAOPING LI
Date: <u> </u>	3/2018	
United States of A	merica )	
State of	California ) ss.:	
County of	Jan 19 Clares	
On this	day of	, before me
personally came	XIAOPING LI	, to me known to be the individua
		of the transphase of secondary on appeals of last becomes.
	State of Caffornia, County of Santa Class (cs. On ES) Housey Public, personany appeared 21/40/2/	c <u>1/16/4</u> belon ma RL S <b>mp</b> h, /a/4 21
	who proved to me on the basis of satisfactory evidence to the within instrument and acknowledged to me that help concentration) and that he bished their structurally on th	he intermises the bearouist on the supplications paying of cyclipian contrict the rains in polybelipian mayoring to be the bearouist who, a project prac, moreover in
	which the personicit acted, executed the instrument. I co State of California that the foregoing paragraph is true :	stally sender PERALTY OF PERSON anders the lown of the and correct. MITHESS my hand and official stall.
	Co No	P. C. SINGH  ommission # 2127652  stary Public - Galifornia Ž  Santa Clara County  omm Explica Oct #1: 2019

Date: <u>04-/</u>	<u>25/20</u>	18			
United States of Ame State of	rica Oh 10	)	<b>88</b> .3		
County of	Weed				
On this <u>25</u>	day of	April		2018	, before me
personally came	DI	<u>NGYUAN LU</u>	\$ <sup>1</sup>	to me known	to be the individual
described in and who	executed th	e foregoing in	strument, an	id acknowled;	ged execution
of the same.			<u>OR</u> Notary P	<u>i UQ</u> ublic	Land
	🕽 📲 Notary Pu	Ri ULINSKI Sic, State of Ohio	en e en		

12/10/2018			
United States of Ame State of	rica	) ) ss.:	
County of		) 33	
On this	day of	٠	, before me
personally came	ROGE	R MALIK	, to me known to be the individual
lescribed in and who of the same.	executed the for	egoing instrument, a	nd acknowledged execution
		Notary I	Public
		iscer completing this certificate venifies only the spenificate is attached, and not the touthfulni	

State of California, County of Santa Clara Iso. On 121/0/10/8 before me R.C. Singh,

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subcontact to the within incomment and actorowiedged to me that helpfore/they executed the same or helpfor/their authorized capacity(les), and that by his/hm/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument. I certal, under PEANLY OF PEANLY ander the laws of the State of California that the brogging paragraph is true and correct. WITACS my band and official sool.

R. C. SINGH
Notary Public - Galifornia
Santa Clara County
Commission # 2127652
My Comm. Expires Oct 21, 2019

Motory Public, personally appraised

	GANG XIONG
Date: $\frac{04/25/2018}{}$	
United States of America	
State of Chic ss County of Wood )	
On this 25 day of April personally came GANG XIONG	, <u>2018</u> , before me , to me known to be the individual
described in and who executed the foregoing instr	
	Star Ulinalia Notary Public
SHERI ULINSKI Notary Public, State of Chi My commission expires 9-22	*