## 503903187 07/06/2016

# PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT3949838

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

#### **CONVEYING PARTY DATA**

Name	Execution Date
LAURENT GIOVANGRANDI	10/07/2011
BURAK DURA	10/16/2011
MICHAEL Q. CHEN	10/13/2011
OMER T. INAN	05/26/2016
PAUL J. WANG	05/27/2016

#### **RECEIVING PARTY DATA**

Name:	THE BOARD OF TRUSTEES OF THE LELAND STANFORD JUNIOR UNIVERSITY
Street Address:	OFFICE OF THE GENERAL COUNSEL, BUILDING 170, 3RD FLOOR
Internal Address:	MAIN QUAD, P.O. BOX 20386
City:	STANFORD
State/Country:	CALIFORNIA
Postal Code:	94305-2038

## **PROPERTY NUMBERS Total: 1**

Property Type	Number	
Application Number:	14348550	

### **CORRESPONDENCE DATA**

#### Fax Number:

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:** 651-686-6633

Email: kwaltigney@ip-firm.com
Correspondent Name: CRAWFORD MAUNU PLLC
Address Line 1: 1150 NORTHLAND DRIVE

Address Line 2: STE 100

Address Line 4: SAINT PAUL, MINNESOTA 55120

ATTORNEY DOCKET NUMBER:	STFD.293US
NAME OF SUBMITTER:	ROBERT J. CRAWFORD
SIGNATURE:	/Robert J. Crawford/
DATE SIGNED:	07/06/2016

PATENT 503903187 REEL: 039087 FRAME: 0456

# **Total Attachments: 19** source=Assignment STFD293US July2016#page1.tif source=Assignment STFD293US July2016#page2.tif source=Assignment STFD293US July2016#page3.tif source=Assignment\_STFD293US\_July2016#page4.tif source=Assignment\_STFD293US\_July2016#page5.tif source=Assignment STFD293US July2016#page6.tif source=Assignment\_STFD293US\_July2016#page7.tif source=Assignment\_STFD293US\_July2016#page8.tif source=Assignment STFD293US July2016#page9.tif source=Assignment STFD293US July2016#page10.tif source=Assignment\_STFD293US\_July2016#page11.tif source=Assignment STFD293US July2016#page12.tif source=Assignment STFD293US July2016#page13.tif source=Assignment\_STFD293US\_July2016#page14.tif source=Assignment\_STFD293US\_July2016#page15.tif source=Assignment STFD293US July2016#page16.tif source=Assignment STFD293US July2016#page17.tif source=Assignment STFD293US July2016#page18.tif source=Assignment STFD293US July2016#page19.tif

PATENT REEL: 039087 FRAME: 0457

WHEREAS, We, Laurent Giovangrandi, residing at 663 Channing Ave., Palo Alto, California 94301; and Burak Dura, residing at 70 Pacific Street Apt 453A Cambridge Massachusetts 02139 made certain new and useful inventions and improvements for which we filed an application for Letters Patent of the United States, U.S. Provisional Patent Application Serial No. 61/543,103 filed on October 4, 2011, and entitled: **SPATIOTEMPORAL CONTROL OF CARDIAC EXCITABILITY USING HIGH-FREQUENCY SIGNALS** (Attorney Docket No. STFD.293P1 / S11-259).

AND WHEREAS, The Board of Trustees of the Leland Stanford Junior University, a corporation organized and existing under and by virtue of the laws of the State of California, and having an office and place of business at 1705 El Camino Real, Palo Alto, California 94306-1106 (hereinafter "Assignee") is desirous of acquiring the entire right, title and interest in and to said inventions, improvements and application and in and to the Letters Patent to be obtained therefor;

AND, furthermore we covenant and agree with said Assignee, its successors and assigns, that no assignment, grant, mortgage, license or other agreement affecting the rights and property herein conveyed has been made to others by us and that full right to convey the same as herein expressed is possessed by us.

IN TESTIMONY WHEREOF, I have hereunto set my hand on this date:

- 2011
(day) (month) (year)

IN TESTIMONY WHEREOF, I have hereunto set my hand on this date:

- 2011
(day) (month) (year)

Burak Dura

	IN TESTIMONY	Y WHEREOF,	I have hereunto set my hand on this date:
		- <u>2011</u>	
(day)	(month)	(year)	
			Laurent Giovangrandi
	IN TESTIMONY	Y WHEREOF,	I have hereunto set my hand on this date:
_16	October		- <u>2011</u>
(day)	(month)	(year)	
			_/Burak Dura/ Burak Dura

WHEREAS, We, Laurent Giovangrandi, residing at 663 Channing Ave., Palo Alto,
California 94301; Michael Q. Chen, residing at;
Omer T. Inan, residing at 104 Hoskins Ct., Apt. 101, Stanford, California 94305; and
Burak Dura, residing at 70 Pacific Street Apt 453A Cambridge Massachusetts 02139 made certain new
and useful inventions and improvements for which we filed an application for Letters Patent of the
United States, U.S. Provisional Patent Application Serial No. 61/543,115 filed on October 4, 2011,
and entitled: ELECTROACTIVE TISSUE EXCITATION USING HIGH-FREQUENCY SIGNALS
(Attorney Docket No. STFD.294P1 / S11-260).

AND WHEREAS, The Board of Trustees of the Leland Stanford Junior University, a corporation organized and existing under and by virtue of the laws of the State of California, and having an office and place of business at 1705 El Camino Real, Palo Alto, California 94306-1106 (hereinafter "Assignee") is desirous of acquiring the entire right, title and interest in and to said inventions, improvements and application and in and to the Letters Patent to be obtained therefor;

	IN TESTIMON	NY WHEREOF	, I have hereunto set my hand on this date:
(day)	(month)	- <u>2011</u> (year)	
			Laurent Giovangrandi
	IN TESTIMON	NY WHEREOF	, I have hereunto set my hand on this date:
	(month)	- <u>2011</u> (year)	
			Michael Q. Chen

	IN TESTIMONY	Y WHEREOF	, I have hereunto set my hand on this date:
(day)	(month)	- <u>2011</u> (year)	
			Omer T. Inan
	IN TESTIMONY	Y WHEREOF	, I have hereunto set my hand on this date:
16 (day)	- October (month)	(year)	<u>2011</u>
			/Burak Dura/ Burak Dura

WHEREAS, We, Laurent Giovangrandi, residing at 663 Channing Ave., Palo Alto, California 94301; and Burak Dura, residing at 70 Pacific Street Apt 453A Cambridge Massachusetts 02139 made certain new and useful inventions and improvements for which we filed an application for Letters Patent of the United States, U.S. Provisional Patent Application Serial No. 61/543,103 filed on October 4, 2011, and entitled: **SPATIOTEMPORAL CONTROL OF CARDIAC EXCITABILITY USING HIGH-FREQUENCY SIGNALS** (Attorney Docket No. STFD.293P1 / S11-259).

AND WHEREAS, The Board of Trustees of the Leland Stanford Junior University, a corporation organized and existing under and by virtue of the laws of the State of California, and having an office and place of business at 1705 El Camino Real, Palo Alto, California 94306-1106 (hereinafter "Assignee") is desirous of acquiring the entire right, title and interest in and to said inventions, improvements and application and in and to the Letters Patent to be obtained therefor;

AND, furthermore we covenant and agree with said Assignee, its successors and assigns, that no assignment, grant, mortgage, license or other agreement affecting the rights and property herein conveyed has been made to others by us and that full right to convey the same as herein expressed is possessed by us.

IN TESTIMONY WHEREOF, I have hereunto set my hand on this date:

7	**	October	2011
(day)		(month)	(year)

Laurent Giovangrandi

IN TESTIMONY WHEREOF, I have hereunto set my hand on this date:

	ME GEORGE VINNERS BERGERS SERVICE AND	- <u>2011</u>
(day)	(month)	(year)

Burak Dura

	IN TESTIMONY	WHEREOF,	I have hereunto set my hand on this date:
(day)	(month)	- <u>2011</u> (year)	
			Laurent Giovangrandi
	IN TESTIMONY	WHEREOF,	I have hereunto set my hand on this date:
_16 (day)	October (month)	(year)	- <u>2011</u>
			_/Burak Dura/

WHEREAS, We, Laurent Giovangrandi, residing at 663 Channing Ave., Palo Alto,
California 94301; Michael Q. Chen, residing at
Omer T. Inan, residing at 104 Hoskins Ct., Apt. 101, Stanford, California 94305; and
Burak Dura, residing at 70 Pacific Street Apt 453A Cambridge Massachusetts 02139 made certain new and useful inventions and improvements for which we filed an application for Letters Patent of the United States, U.S. Provisional Patent Application Serial No. 61/543,115 filed on October 4, 2011, and entitled: ELECTROACTIVE TISSUE EXCITATION USING HIGH-FREQUENCY SIGNALS (Attorney Docket No. STFD.294P1 / S11-260).

AND WHEREAS, The Board of Trustees of the Leland Stanford Junior University, a corporation organized and existing under and by virtue of the laws of the State of California, and having an office and place of business at 1705 El Camino Real, Palo Alto, California 94306-1106 (hereinafter "Assignee") is desirous of acquiring the entire right, title and interest in and to said inventions, improvements and application and in and to the Letters Patent to be obtained therefor;

IN TESTIMON	NY WHEREOF,	I have hereunto set my hand on this date:
 (month)	- <u>2011</u> (year)	
		Laurent Giovangrandi
IN TESTIMON	NY WHEREOF,	, I have hereunto set my hand on this date:
 (month)	- <u>2011</u> (year)	
		Michael Q. Chen

	IN TESTIMONY	WHEREOF	, I have hereunto set my hand on this date:
(day)	(month)	- <u>2011</u> (year)	
			Omer T. Inan
	IN TESTIMONY	WHEREOF	, I have hereunto set my hand on this date:
16 (day)	October (month)	(year)	<u>- 2011</u>
			_/Burak Dura/ Burak Dura

WHEREAS, We, Laurent Giovangrandi, residing at 663 Channing Ave., Palo Alto,
California 94301; Michael Q. Chen, residing at 486 Virginia Pine Terrace, Sunnyvale, California 94086;
Omer T. Inan, residing at 104 Hoskins Ct., Apt. 101, Stanford, California 94305; and
Burak Dura, residing at
made certain new and useful inventions and improvements for which we filed an application for
Letters Patent of the United States, U.S. Provisional Patent Application Serial No. 61/543,115 filed
on October 4, 2011, and entitled: <b>ELECTROACTIVE TISSUE EXCITATION USING HIGH-</b>
FREQUENCY SIGNALS (Attorney Docket No. STFD.294P1 / S11-260).

AND WHEREAS, The Board of Trustees of the Leland Stanford Junior University, a corporation organized and existing under and by virtue of the laws of the State of California, and having an office and place of business at 1705 El Camino Real, Palo Alto, California 94306-1106 (hereinafter "Assignee") is desirous of acquiring the entire right, title and interest in and to said inventions, improvements and application and in and to the Letters Patent to be obtained therefor;

AND, furthermore we covenant and agree with said Assignee, its successors and assigns, that no assignment, grant, mortgage, license or other agreement affecting the rights and property herein conveyed has been made to others by us and that full right to convey the same as herein expressed is possessed by us.

IN TESTIMONY WHEREOF, I have hereunto set my hand on this date:

- 2011
(day) (month) (year)

Laurent Giovangrandi

IN TESTIMONY WHEREOF, I have hereunto set my hand on this date:

 $\frac{13}{\text{(day)}}$  -  $\frac{\text{October}}{\text{(month)}}$   $\frac{2011}{\text{(year)}}$ 

/Michael Q. Chen/

Michael Q. Chen

	IN TESTIMON	NY WHEREOF,	I have hereunto set my hand on this date:
(day)	(month)	- <u>2011</u> (year)	
			Omer T. Inan
	IN TESTIMON	NY WHEREOF,	I have hereunto set my hand on this date:
	(month)	- <u>2011</u> (year)	·
			Burak Dura

Serial No. 14/348,550

Docket No. STFD.293US (S11-259)



#### **ASSIGNMENT**

WHEREAS, We, Laurent Giovangrandi, residing at 663 Channing Ave., Palo Alto, California 94301; Burak Dura, residing at 70 Pacific Street, Apt 453A, Cambridge, Massachusetts 02139; Michael Q. Chen, residing at 486 Virginia Pine Terrace, Sunnyvale, California 94086; Omer T. Inan, residing at 104 Hoskins Ct., Apt. 101, Stanford, California 94305; and Paul J. Wang, residing at 300 Pasteur Drive, Stanford, California 94305 made certain new and useful inventions and improvements for which we filed an application for Letters Patent of the United States, U.S. Patent Application Serial No. 14/348,550 filed on March 28, 2014, and entitled: CONTROL OF CARDIAC EXCITABILITY USING HIGH-FREQUENCY SIGNALS (Attorney Docket No. STFD.293US), which is the 35 U.S.C. 371 national-phase entry of International Application No. PCT/US2012/058602 filed on October 4, 2012, and which claims the benefit of U.S. Provisional Applications, Serial No. 61/543,103 filed on October 4, 2011, Serial No. 61/543,115 filed on October 4, 2011, and Serial No. 61/543,125 filed on October 4, 2011.

AND WHEREAS, The Board of Trustees of the Leland Stanford Junior University, a corporation organized and existing under and by virtue of the laws of the State of California, and having an office and place of business at the Office of the General Counsel, Building 170, 3rd Floor, Main Quad, P.O. Box 20386, Stanford, California 94305-2038 (hereinafter "Assignee") is desirous of acquiring the entire right, title and interest in and to said inventions, improvements and application and in and to the Letters Patent to be obtained therefor;

NOW THEREFORE, to all whom it may concern, be it known that for and in consideration of the sum of One Dollar and other good and valuable considerations, the receipt and sufficiency whereof is hereby acknowledged, we have sold, assigned, and transferred, and by these presents do sell, assign and transfer unto said Assignee, its successors or assigns, the entire right, title and interest for all countries in and to all inventions and improvements disclosed in the aforesaid application, and the provisional patent application, and in and to the application, all divisions, continuations, conversions or renewals thereof, all Letters Patent which may be granted therefrom, and all reissues or extensions of such patents, and in and to any and all applications which have been or shall be filed in any foreign countries for Letters Patent on the inventions and improvements, including an assignment of all rights under the provisions of the International Convention, and all Letters Patent of foreign countries which may be granted therefrom; and we do hereby authorize and request the Commissioner of Patents and Trademarks to issue any and all United States Letters Patent for the aforesaid inventions and

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Docket No. STFD.293US (S11-259)

improvements to the Assignee as the assignee of the entire right, title and interest in and to the same, for the use of the Assignee, its successors and assigns.

AND, for the consideration aforesaid, we do hereby agree that we and our executors and legal representatives will make, execute and deliver any and all other instruments in writing including any and all further application papers, affidavits, assignments and other documents, and will communicate to said Assignee, its successors and representatives all facts known to us relating to said improvements and the history thereof and will testify in all legal proceedings and generally do all things which may be necessary or desirable more effectually to secure to and vest in said Assignee, its successors or assigns the entire right, title and interest in and to the improvements, inventions, applications, Letters Patent, rights, titles, benefits, privileges and advantages hereby sold, assigned and conveyed, or intended so to be.

	IN TESTIMONY	WHEREOF, I	have hereunto set my hand on this date:
_26th (day)	<u>May</u> (month)	(year)	2016 Alexander
		(	Omer T. Inan
	IN TESTIMONY	WHEREOF, I	have hereunto set my hand on this date:
(day) -	(month)	- <u>2016</u> (year)	
		-	Paul J. Wang

WHEREAS, We, Laurent Giovangrandi, residing at 663 Channing Ave., Palo Alto, California 94301; Burak Dura, residing at 70 Pacific Street, Apt 453A, Cambridge, Massachusetts 02139; Michael Q. Chen, residing at 486 Virginia Pine Terrace, Sunnyvale, California 94086; Omer T. Inan, residing at 104 Hoskins Ct., Apt. 101, Stanford, California 94305; and Paul J. Wang, residing at 12776 Rodoni Ct, Saratoga, California 95070 made certain new and useful inventions and improvements for which we filed an application for Letters Patent of the United States, U.S. Patent Application Serial No. 14/348,550 filed on March 28, 2014, and entitled: CONTROL OF CARDIAC EXCITABILITY USING HIGH-FREQUENCY SIGNALS (Attorney Docket No. STFD.293US), which is the 35 U.S.C. 371 national-phase entry of International Application No. PCT/US2012/058602 filed on October 4, 2012, and which claims the benefit of U.S. Provisional Applications, Serial No. 61/543,103 filed on October 4, 2011, Serial No. 61/543,115 filed on October 4, 2011, and Serial No. 61/543,125 filed on October 4, 2011.

AND WHEREAS, The Board of Trustees of the Leland Stanford Junior University, a corporation organized and existing under and by virtue of the laws of the State of California, and having an office and place of business at the Office of the General Counsel, Building 170, 3rd Floor, Main Quad, P.O. Box 20386, Stanford, California 94305-2038 (hereinafter "Assignee") is desirous of acquiring the entire right, title and interest in and to said inventions, improvements and application and in and to the Letters Patent to be obtained therefor;

NOW THEREFORE, to all whom it may concern, be it known that for and in consideration of the sum of One Dollar and other good and valuable considerations, the receipt and sufficiency whereof is hereby acknowledged, we have sold, assigned, and transferred, and by these presents do sell, assign and transfer unto said Assignee, its successors or assigns, the entire right, title and interest for all countries in and to all inventions and improvements disclosed in the aforesaid application, and the provisional patent application, and in and to the application, all divisions, continuations, conversions or renewals thereof, all Letters Patent which may be granted therefrom, and all reissues or extensions of such patents, and in and to any and all applications which have been or shall be filed in any foreign countries for Letters Patent on the inventions and improvements, including an assignment of all rights under the provisions of the International Convention, and all Letters Patent of foreign countries which may be granted therefrom; and we do hereby authorize and request the Commissioner of Patents and Trademarks to issue any and all United States Letters Patent for the aforesaid inventions and

**PATENT** 

Docket No. STFD.293US (S11-259)

improvements to the Assignee as the assignee of the entire right, title and interest in and to the same, for the use of the Assignee, its successors and assigns.

AND, for the consideration aforesaid, we do hereby agree that we and our executors and legal representatives will make, execute and deliver any and all other instruments in writing including any and all further application papers, affidavits, assignments and other documents, and will communicate to said Assignee, its successors and representatives all facts known to us relating to said improvements and the history thereof and will testify in all legal proceedings and generally do all things which may be necessary or desirable more effectually to secure to and vest in said Assignee, its successors or assigns the entire right, title and interest in and to the improvements, inventions, applications, Letters Patent, rights, titles, benefits, privileges and advantages hereby sold, assigned and conveyed, or intended so to be.

AND, furthermore we covenant and agree with said Assignee, its successors and assigns, that no assignment, grant, mortgage, license or other agreement affecting the rights and property herein conveyed has been made to others by us and that full right to convey the same as herein expressed is possessed by us.

IN TESTIMONY WHEREOF, I have hereunto set my hand on this date:

(month)	<u>2016</u> (year)	
		Omer T. Inan
IN TESTIMONY V	VHEREOF, I	nave hereunto set my hand on this date:
(month)	- <u>2016</u> (year)	Sad Way
	IN TESTIMONY V	(month) (year)  IN TESTIMONY WHEREOF, II  May - 2016