### 501968182 06/26/2012

### PATENT ASSIGNMENT

Electronic Version v1.1 Stylesheet Version v1.1

| SUBMISSION TYPE:      | NEW ASSIGNMENT                |
|-----------------------|-------------------------------|
| NATURE OF CONVEYANCE: | GOVERNMENT INTEREST AGREEMENT |

## CONVEYING PARTY DATA

| Name              | Execution Date |
|-------------------|----------------|
| Wayne P. Liu      | 06/25/2012     |
| Richard L. Waters | 06/25/2012     |
| Hugo F. Jazo      | 06/25/2012     |
| Brian B. Dick     | 06/25/2012     |

#### RECEIVING PARTY DATA

| Name:             | United States of America as represented by the Secretary of the Navy |  |
|-------------------|----------------------------------------------------------------------|--|
| Street Address:   | One Liberty Center, 875 North Randolph Street, Suite 1425            |  |
| Internal Address: | Office of Naval Research                                             |  |
| City:             | Arlington                                                            |  |
| State/Country:    | VIRGINIA                                                             |  |
| Postal Code:      | 22203-1995                                                           |  |

## PROPERTY NUMBERS Total: 1

| Property Type       | Number   |
|---------------------|----------|
| Application Number: | 13532607 |

#### CORRESPONDENCE DATA

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| ATTORNEY DOCKET NUMBER: | 101636         |
|-------------------------|----------------|
| NAME OF SUBMITTER:      | Ryan J. Friedl |

Total Attachments: 2

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PATENT

REEL: 028441 FRAME: 0611

13532607

SH \$40.00

BRIAN B. DICK

### ASSIGNMENT

WHEREAS, we, Wayne P. Liu, Richard L. Waters, Hugo F. Jazo, and Brian B. Dick of San Diego, CA, while employed by the Government of the United States, have invented certain new and useful improvements in:

# ENERGY HARVESTING SYSTEM USING FLOW-INDUCED VIBRATIONS

| ·                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                      |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| identified as Navy Case No.101636, described in application for Letters Pat on                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ent of the United States of America executed by us                                                                                                                   |  |  |
| WHEREAS, the Government of the United States, represented by the Secret Government, is desirous of acquiring an assignment of the invention disclosure herein granted; and                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                      |  |  |
| WHEREAS, the conditions under which the invention was made are such as Executive Order 10096, to the entire right, title and interest therein, including                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                      |  |  |
| WHEREAS, as to foreign rights, it is the policy of the Government to obtain                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | an option to exercise such rights;                                                                                                                                   |  |  |
| NOW, THEREFORE, in consideration of the promises and other good and vacknowledged, we hereby assign and transfer to the Government the entire rithe United States of America, its territories and possessions, and the entire rany continuation, division or substitution thereof, and such Letters Patent to be which said Letters Patent may be granted, as fully and entirely as the same value made.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ght, title and interest in and to said invention within ight, title and interest in and to said application and be held by the Government to the end of the term for |  |  |
| We do hereby also grant unto the Government, the option to take the entire right, title and interest in the invention and all patent applications or other forms of protection thereon in all countries foreign to the United States in which the Government may file, or cause to be filed, applications for Letter Patent or other forms of protection, without payment of any consideration; provided, however that this grant of an option to take foreign rights in the invention, or applications or other forms of protection thereon, shall have force and effect only as to such applications filed in foreign countries within eight months of the filing date of any application for United States Letter Patent covering the invention, or within eight months from the declassification of the invention, whichever is later, and that all foreign rights exercised under the option are left to us subject to a nonexclusive, irrevocable, royalty-free license to the Government in any patent or other form of protection which may issue on said invention in any foreign country, including the power to issue sublicenses for use in behalf of the Government and/or in furtherance of the foreign policies of the Government. |                                                                                                                                                                      |  |  |
| We hereby further agree to make, execute, and deliver to the Government, and or other instruments that may be necessary in the prosecution of the application of the application for reissue or extension of said Letters I protecting the invention as may be requested, provided that any expense Government.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ion and of any continuation, division or substitution Patent, and to assist the Government in every way in                                                           |  |  |
| IN TESTIMONY WHEREOF, we have set our hand and affixed our seal.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | •                                                                                                                                                                    |  |  |
| WAYNE P.LIU                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Date 6-25-12                                                                                                                                                         |  |  |
| WATNEY. LIU                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>.</b>                                                                                                                                                             |  |  |
| RICHARD L. WATERS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Date                                                                                                                                                                 |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Date                                                                                                                                                                 |  |  |
| HUGO F. JAZO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                      |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Date                                                                                                                                                                 |  |  |

## **ASSIGNMENT**

WHEREAS, we, Wayne P. Liu, Richard L. Waters, Hugo F. Jazo, and Brian B. Dick of San Diego, CA, while employed by the Government of the United States, have invented certain new and useful improvements in:

# ENERGY HARVESTING SYSTEM USING FLOW-INDUCED VIBRATIONS

| EMEAGI HARVESTHOOTSTEW COMOTE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | OW-INDOCED VIDICATIONS                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| identified as Navy Case No.101636, described in application for Letters on, 2012; and                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Patent of the United States of America executed by us                                                                                                                                                                                                                                                                                                                                           |
| WHEREAS, the Government of the United States, represented by the So<br>Government, is desirous of acquiring an assignment of the invention disc<br>herein granted; and                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                 |
| WHEREAS, the conditions under which the invention was made are such Executive Order 10096, to the entire right, title and interest therein, include                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                 |
| WHEREAS, as to foreign rights, it is the policy of the Government to obta                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | in an option to exercise such rights;                                                                                                                                                                                                                                                                                                                                                           |
| NOW, THEREFORE, in consideration of the promises and other good and acknowledged, we hereby assign and transfer to the Government the entire the United States of America, its territories and possessions, and the entire any continuation, division or substitution thereof, and such Letters Patent to which said Letters Patent may be granted, as fully and entirely as the same been made.                                                                                                                                                                                                                                                                                                                                            | e right, title and interest in and to said invention within<br>e right, title and interest in and to said application and<br>to be held by the Government to the end of the term for                                                                                                                                                                                                            |
| We do hereby also grant unto the Government, the option to take the entir applications or other forms of protection thereon in all countries foreign to or cause to be filed, applications for Letter Patent or other forms of protect however that this grant of an option to take foreign rights in the invention shall have force and effect only as to such applications filed in foreign capplication for United States Letter Patent covering the invention, or invention, whichever is later, and that all foreign rights exercised under irrevocable, royalty-free license to the Government in any patent or other in any foreign country, including the power to issue sublicenses for use in foreign policies of the Government. | o the United States in which the Government may file, ction, without payment of any consideration; provided, in, or applications or other forms of protection thereon, countries within eight months of the filing date of any within eight months from the declassification of the r the option are left to us subject to a nonexclusive, form of protection which may issue on said invention |
| We hereby further agree to make, execute, and deliver to the Government, or other instruments that may be necessary in the prosecution of the application of the application, or any application for reissue or extension of said Letter protecting the invention as may be requested, provided that any experiment.                                                                                                                                                                                                                                                                                                                                                                                                                        | cation and of any continuation, division or substitution is Patent, and to assist the Government in every way in                                                                                                                                                                                                                                                                                |
| IN TESTIMONY WHEREOF, we have set our hand and affixed our seal. $ \\$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Date                                                                                                                                                                                                                                                                                                                                                                                            |
| WAYNE P. LIU                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                 |
| 12.25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Date_ ca/25/12_                                                                                                                                                                                                                                                                                                                                                                                 |
| RICHARD L. WATERS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 6/25/20h                                                                                                                                                                                                                                                                                                                                                                                        |
| HUGO F. JAZO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Date _ 7 _ 7 - 7                                                                                                                                                                                                                                                                                                                                                                                |
| BUS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Date 6/25/2012                                                                                                                                                                                                                                                                                                                                                                                  |
| BRIAN B. DICK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                 |

PATENT

**REEL: 028441 FRAME: 0613**