

<b>PATENT ASSIGNMENT COVER SHEET</b>
--------------------------------------

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT3759101

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
THE REGENTS OF THE UNIVERSITY OF CALIFORNIA	02/25/2016
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	Lawrence Livermore National Security, LLC
<b>Street Address:</b>	2300 First Street
<b>Internal Address:</b>	Suite 204
<b>City:</b>	Livermore
<b>State/Country:</b>	CALIFORNIA
<b>Postal Code:</b>	94550
<b>PROPERTY NUMBERS Total: 2</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	60802077
<b>Patent Number:</b>	8187398
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(925)423-2231
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>	
<b>Phone:</b>	925-422-7272
<b>Email:</b>	disney2@llnl.gov
<b>Correspondent Name:</b>	LLNL
<b>Address Line 1:</b>	7000 EAST AVENUE
<b>Address Line 2:</b>	L-703, P.O. BOX 808
<b>Address Line 4:</b>	LIVERMORE, CALIFORNIA 94551
<b>ATTORNEY DOCKET NUMBER:</b>	IL-11634
<b>NAME OF SUBMITTER:</b>	MARK H. LOUGH
<b>SIGNATURE:</b>	/MARK H. LOUGH/
<b>DATE SIGNED:</b>	02/26/2016
<b>Total Attachments: 4</b>	
source=IL-11634 Exec WWA Assign#page1.tif	
source=IL-11634 Exec WWA Assign#page2.tif	
source=IL-11634 Exec WWA Assign#page3.tif	



## WORLD-WIDE ASSIGNMENT OF PATENT RIGHTS

For good and valuable consideration, the receipt of which is hereby acknowledged, The Regents of the University of California, a California corporation having its statewide administrative offices at 1111 Franklin Street, Oakland, CA 94607-5200, hereinafter referred to as "ASSIGNOR," hereby sells, conveys, assigns and transfers to Lawrence Livermore National Security, LLC, having offices at 2300 First Street, Suite 204, Livermore, CA 94550, hereinafter referred to as "ASSIGNEE," ASSIGNOR'S entire right, title and interest in and to the following:

- (a) any provisional or non-provisional patent application or patent identified in the attached Schedule;
- (b) any continuation or divisional patent application entitled to the priority date of an application or patent identified in the attached Schedule;
- (c) any continuation-in-part or substitute application based on a patent application or patent described in (a) or (b) above, but only with regard to and to the extent of subject matter that either:
  - (i) is described in and entitled to the priority date of an application or patent identified in (a) or (b) above; or
  - (ii) is described in a continuation-in-part or substitute application filed prior to October 1, 2007 and based on an application or patent described in (a) or (b) above; or
  - (iii) was conceived or actually reduced to practice prior to October 1, 2007;
- (d) any patent already issued as of the effective date of this Assignment or issued after the date of this Assignment from an application described in (a) or (b) above, or from an application described in (c) above but subject to the same limitations as set forth in (c) above;
- (e) any patent resulting from extension, renewal, reinstatement, reissue or re-examination, or any interference, opposition, or judicial proceeding, directed to a patent application or patent described above; and
- (f) any foreign equivalent or counterpart of an application or patent described above.

This Assignment is subject to the terms of Contract No. W-7405-ENG-48 between ASSIGNOR and the National Nuclear Security Administration of the U.S. Department of Energy (DOE), and is subject to any license granted by ASSIGNOR under said Contract to the U.S. Government or to any third party pursuant to any license agreement, option agreement or other agreement.

ASSIGNOR and ASSIGNEE each covenant that they will, upon request, provide each other promptly with information and documents relating to inventions, inventors, and other information pertinent to patent applications, patents and legal equivalents thereof covered by this Assignment, to the extent known and accessible to them, and will cooperate and testify as to the same in any interference, litigation or proceeding related thereto; and ASSIGNOR will promptly execute and deliver to ASSIGNEE or its legal representatives any and all papers, instruments or affidavits required to apply for, obtain, maintain, issue and enforce such applications, patents and legal equivalents, as may be necessary or desirable to carry out the purposes thereof.

ASSIGNEE hereby assumes responsibility for prosecution and maintenance of applications and patents conveyed by this Assignment, including costs and expenses of

prosecuting U.S. and non-U.S. patent applications conveyed by this Assignment, any U.S or non-U.S. administrative or judicial proceedings or litigation involving patent applications, patents or legal equivalents conveyed by this Assignment, and any maintenance or renewal costs associated with same, including costs and expenses incurred by ASSIGNEE prior to as well as subsequent to the date of this Assignment.

ASSIGNOR hereby grants to ASSIGNEE and its attorneys the power to insert in this Assignment any further identification that may be necessary or desirable to comply with the rules or requirements of the U.S. Patent and Trademark office, or any other non-U.S. patent office, for recordation of this Assignment.

This Assignment shall be effective as of the latter of the dates on which it is executed by ASSIGNOR and ASSIGNEE.

Agreed and Accepted By: THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

Date: February 25, 2016

By: William T. Tucker  
William T. Tucker, Ph.D. M.B.A.  
Executive Director  
Innovation Alliances and Services

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California )

ss.

County of Alameda )

On 02/25/2016 before me, Jerina A. LaBat, Notary Public, personally appeared:  
William T. Tucker

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

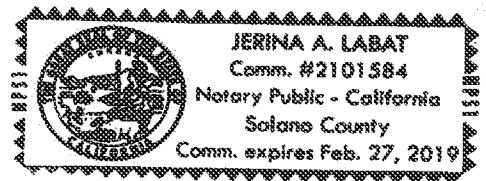
I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

Witness my hand and official seal

Notary Public Signature:

Jerina A. LaBat

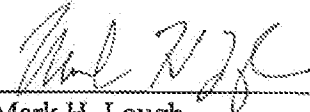
Notary Public Seal



Agreed and Accepted By:

LAWRENCE LIVERMORE NATIONAL SECURITY, LLC

Date: February 23, 2016

By:   
Mark H. Lough  
Deputy General Counsel

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of CA )

ss.

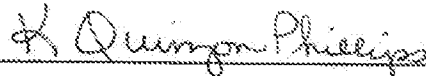
County of Alameda)

On 2-23-16 before me, Kathleen C. Quinzon-Phillips, personally appeared: Mark H. Lough who proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

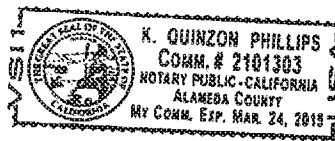
I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

Witness my hand and official seal

Notary Public Signature:



Notary Public Seal:



WORLD-WIDE ASSIGNMENT OF PATENT RIGHTS

Schedule  
IL-11634 Family

COUNTRY	PATENT APPLICATION NO. or PATENT NO.	FILING OR GRANT DATE	TITLE
US	60/802,077	05-18-2006	ENERGETIC COMPOSITE AND SYSTEM WITH ENHANCED MECHANICAL SENSITIVITY TO INITIATION OF SELF-SUSTAINED REACTION
US	8,187,398	05-29-2012	ENERGETIC COMPOSITE AND SYSTEM WITH ENHANCED MECHANICAL SENSITIVITY TO INITIATION OF SELF-SUSTAINED REACTION

All of the foregoing applications naming inventors identified as:

Alexander E. Gash, Troy W. Barbee Jr.