

PATENT ASSIGNMENT

Electronic Version v1.1

Stylesheet Version v1.1

SUBMISSION TYPE:	NEW ASSIGNMENT										
NATURE OF CONVEYANCE:	ASSIGNMENT										
CONVEYING PARTY DATA											
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 70%;">Name</th> <th style="width: 30%;">Execution Date</th> </tr> </thead> <tbody> <tr> <td>Xudong Fan</td> <td>07/27/2001</td> </tr> <tr> <td>David B. Geohegan</td> <td>03/13/2000</td> </tr> <tr> <td>Roland D. Seals</td> <td>03/13/2000</td> </tr> </tbody> </table>		Name	Execution Date	Xudong Fan	07/27/2001	David B. Geohegan	03/13/2000	Roland D. Seals	03/13/2000		
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RECEIVING PARTY DATA											
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">Name:</td> <td>UT-Battelle, LLC</td> </tr> <tr> <td>Street Address:</td> <td>One Bethel Valley Road, P.O. Box 2008</td> </tr> <tr> <td>City:</td> <td>Oak Ridge</td> </tr> <tr> <td>State/Country:</td> <td>TENNESEE</td> </tr> <tr> <td>Postal Code:</td> <td>37831</td> </tr> </table>		Name:	UT-Battelle, LLC	Street Address:	One Bethel Valley Road, P.O. Box 2008	City:	Oak Ridge	State/Country:	TENNESEE	Postal Code:	37831
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PROPERTY NUMBERS Total: 1											
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CORRESPONDENCE DATA											
<p>Fax Number: (312)321-4299</p> <p><i>Correspondence will be sent via US Mail when the fax attempt is unsuccessful.</i></p> <p>Phone: 312-321-4200</p> <p>Email: croempagel@usebrinks.com</p> <p>Correspondent Name: Mindy N. Rittner</p> <p>Address Line 1: P.O. Box 10395</p> <p>Address Line 4: Chicago, ILLINOIS 60610</p>											
ATTORNEY DOCKET NUMBER:	13489-69										
NAME OF SUBMITTER:	Mindy N. Rittner										
<p>Total Attachments: 8</p> <p>source=1348969_UTBattelleAssignments#page1.tif</p> <p>source=1348969_UTBattelleAssignments#page2.tif</p>											

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ASSIGNMENT

WHEREAS, I (we) , the below-named inventors, whose residence and post office is (are) as stated below, have invented certain new and useful improvements in

CONDENSED PHASE CONVERSION AND GROWTH OF NANORODS AND OTHER MATERIALS

for which an application for United States Letters Patent was executed on March 13, 2000, the specification having been filed on November 26, 1999, and accorded Serial No. 09/449,844, and

WHEREAS, UT-Battelle, LLC, a limited liability company of the State of Tennessee, having an office at Oak Ridge National Laboratory, Bethel Valley Road, P.O. Box 2008, Oak Ridge, Tennessee 37831-6255, hereinafter called the ASSIGNEE, is desirous of acquiring the entire right, title and interest in the application and invention and to any Letters Patent that may be granted therefor in the United States of America and in any and all foreign countries. (Agents of ASSIGNEE are authorized to fill in blanks and make corrections in this document).

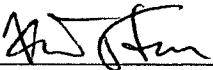
NOW THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, I (we) hereby assign to ASSIGNEE the entire right, title and interest in the application and the invention, to all rights of priority thereto pursuant to the International Convention for the Protection of Industrial Property, and in any Letters Patent on the invention that may be granted in the United States of America and in any and all foreign countries, including any and all Letters Patent that are divisions, reissues, continuations, substitutions or extensions of any Letters Patent or applications therefor on the invention.

I (we) hereby authorize and request the Commissioner of the United States Patent and Trademark Office and the officials of any and all foreign countries to issue any and all of said Letters Patent, when granted, to the ASSIGNEE.

Further, I (we) hereby agree to communicate to said ASSIGNEE or its representatives any facts known to us respecting said invention, to testify in any legal proceedings, sign all lawful papers, execute all divisional, continuation, substitution, renewal and reissue applications, to execute all necessary assignment papers to cause any and all of said Letters Patent to be issued to said ASSIGNEE, and to make all rightful oaths and generally do everything possible to aid said ASSIGNEE and its representatives to obtain and enforce proper protection for said invention in the United States of America and in any and all foreign countries.

I (we) further agree that the terms, covenants and conditions of this assignment shall inure to the benefit of ASSIGNEE, its successors, assigns, and legal representatives, and shall be binding on me (us), our heirs, legal representatives, and assigns.

Full name of first inventor: Xudong Fan

Inventor's Signature:  Date: 7/27/01

Residence: 299 North Illinois Ave., Apt. C, Oak Ridge, TN 37830

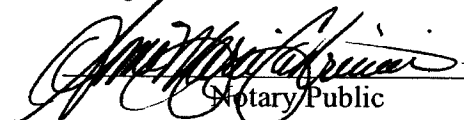
Post Office Address: 299 North Illinois Ave., Apt. C, Oak Ridge, TN 37830

Citizenship: Australia

State of Michigan)
County of Ingham)

On this 27th day of July, 2001, before me, a Notary Public in and for the County and State aforesaid, appeared Xudong Fan, to me personally known to be the same person whose name is subscribed to the foregoing instrument, and acknowledged that he executed said instrument as his free and voluntary act and for the uses and purposes therein expressed.

WITNESS my hand and seal the day and year last above given.


Notary Public

SEAL

ANNE MARIE CASTRICIANO
NOTARY PUBLIC INGHAM CO., MI
MY COMMISSION EXPIRES Aug 24, 2006

ASSIGNMENT

WHEREAS, the undersigned,

Roland D. Seals
103 Carson Lane
Oak Ridge, TN 37830

hereinafter termed "Inventor", has invented certain new and useful improvements in

CONDENSED PHASE CONVERSION AND GROWTH OF NANORODS AND OTHER MATERIALS

and have filed an application for a United States patent disclosing and identifying the above invention on November 26, 1999 as Application No. 09/449,844 (hereinafter termed "application"); and

WHEREAS, Lockheed Martin Energy Systems, Inc. having a business at P.O. Box 2009, Oak Ridge, Tennessee 37831-8243, (hereinafter termed "Assignee"), is desirous of acquiring the Inventor's entire right, title and interest in and to said application and the invention disclosed therein, and in and to all embodiments of the invention, heretofore conceived, made or discovered by said Inventor (all collectively hereinafter termed "said invention"), and in and to any and all patents, inventor's certificates and other forms of protection (hereinafter termed "patents") thereon granted in the United States and foreign countries. (Agents of ASSIGNEE are authorized to fill in blanks in this document.)

NOW, THEREFORE, in consideration of good and valuable consideration acknowledged by said Inventor to have been received in full from said Assignee:

1. Said Inventor does hereby sell, assign, transfer and convey unto said Assignee his entire right, title and interest (a) in and to said application and said invention; (b) in and to all rights to apply for foreign patents on said invention pursuant to the International Convention for the Protection of Industrial Property or otherwise; (c) in and to any and all applications filed and any and all patents granted on said invention in the United States or any foreign country, including each and every application filed and each and every patent granted on any application which is a divisional, substitution, continuation, or continuation-in-part of any of said applications; and (d) in and to each and every reissue or extensions of any of said patents.

2. Said Inventor hereby covenants and agrees to cooperate with said Assignee to enable said Assignee to enjoy to the fullest extent the right, title and interest herein conveyed in the United States and foreign countries. Such cooperation by said Inventor shall include prompt production of pertinent facts and documents, giving of testimony, execution of petitions, oaths, specifications, declarations or other papers, and other assistance all to the extent deemed necessary or desirable by said Assignee (a) for perfecting in said Assignee the right, title and interest herein conveyed; (b) for prosecuting any of said applications; (c) for filing and prosecuting substitute, divisional, continuing or additional applications covering said invention; (d) for filing and prosecuting applications for reissuance of any said patents; (e) for interference or other priority proceedings involving said invention; and (f) for legal proceedings involving said invention and any applications therefor and any patents granted thereon, including without limitation reissues and reexaminations, opposition proceedings, cancellation proceedings, priority

contests, public use proceedings, infringement actions and court actions; provided, however, that the expense incurred by said Inventor in providing such cooperation shall be paid for by said Assignee.

3. The terms and covenants of this assignment shall inure to the benefit of said Assignee, its successors, assigns and other legal representatives, and shall be binding upon said Inventor, his respective heirs, legal representatives and assigns.

4. Said Inventor hereby severally warrants and represents that he has not entered and will not enter into any assignment, contract, or understanding in conflict herewith.

IN WITNESS WHEREOF, said Inventors has executed and delivered this instrument to said Assignee as of the dates written below.

Roland D. Seals
Roland D. Seals

3/13/00
Date

State of TENNESSEE

County of KNOX

On MARCH 13, 2000, before me, KIRK WILSON
Personally appeared Roland D. Seals

☒ personally known to me or ☐ 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/she executed the same in his/her authorized capacity, and that by his/her signature on the instrument the person or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

Kirk A. Wilson
(Notary Public)

my Commission expires: MAY 26 2001

ASSIGNMENT

WHEREAS, the undersigned,

David B. Geohegan
10613 Chevy Drive
Knoxville, TN 37922

hereinafter termed "Inventor", has invented certain new and useful improvements in

CONDENSED PHASE CONVERSION AND GROWTH OF NANORODS AND OTHER MATERIALS

and have filed an application for a United States patent disclosing and identifying the above invention on November 26, 1999 as Application No. 09/449,844 (hereinafter termed "application"); and

WHEREAS, Lockheed Martin Energy Research Corporation having a business at P.O. Box 2008, Oak Ridge, Tennessee 37831-8243, (hereinafter termed "Assignee"), is desirous of acquiring the Inventor's entire right, title and interest in and to said application and the invention disclosed therein, and in and to all embodiments of the invention, heretofore conceived, made or discovered by said Inventor (all collectively hereinafter termed "said invention"), and in and to any and all patents, inventor's certificates and other forms of protection (hereinafter termed "patents") thereon granted in the United States and foreign countries. (Agents of ASSIGNEE are authorized to fill in blanks in this document.)

NOW, THEREFORE, in consideration of good and valuable consideration acknowledged by said Inventors to have been received in full from said Assignee:

1. Said Inventor does hereby sell, assign, transfer and convey unto said Assignee his entire right, title and interest (a) in and to said application and said invention; (b) in and to all rights to apply for foreign patents on said invention pursuant to the International Convention for the Protection of Industrial Property or otherwise; (c) in and to any and all applications filed and any and all patents granted on said invention in the United States or any foreign country, including each and every application filed and each and every patent granted on any application which is a divisional, substitution, continuation, or continuation-in-part of any of said applications; and (d) in and to each and every reissue or extensions of any of said patents.

2. Said Inventor hereby covenants and agrees to cooperate with said Assignee to enable said Assignee to enjoy to the fullest extent the right, title and interest herein conveyed in the United States and foreign countries. Such cooperation by said Inventor shall include prompt production of pertinent facts and documents, giving of testimony, execution of petitions, oaths, specifications, declarations or other papers, and other assistance all to the extent deemed necessary or desirable by said Assignee (a) for perfecting in said Assignee the right, title and interest herein conveyed; (b) for prosecuting any of said applications; (c) for filing and prosecuting substitute, divisional, continuing or additional applications covering said invention; (d) for filing and prosecuting applications for reissuance of any said patents; (e) for interference or other priority proceedings involving said invention; and (f) for legal proceedings involving said invention and any applications therefor and any patents granted thereon, including without limitation reissues and reexaminations, opposition proceedings, cancellation proceedings, priority

**ASSIGNMENT OF SUBJECT INVENTIONS, U.S. AND FOREIGN PATENT APPLICATIONS
AND ISSUED FOREIGN PATENTS OF SUBJECT INVENTIONS**

WHEREAS, LOCKHEED MARTIN ENERGY RESEARCH CORPORATION, a corporation of the State of Delaware, having an office at Post Office Box 2008, Oak Ridge, Tennessee 37831-8243 (hereinafter referred to as "LMER"), has acquired by assignment from employees of LMER and/or Lockheed Martin Energy Systems, Inc. (hereinafter referred to as "LMES") the undivided right, title, and interest of Subject Inventions, United States and foreign patent applications of Subject Inventions and United States and foreign patents of Subject Inventions of sole or joint inventor employees of OAK RIDGE NATIONAL LABORATORY (hereinafter referred to as "ORNL") managed by LMER or LMES at the time said inventor employees conceived or reduced to practice said Subject Inventions under Prime Contract Nos. DE-AC05-96OR22464 and/or DE-AC05-84OR21400 with the United States Department of Energy;

WHEREAS, LMER has been replaced effective April 1, 2000 by a successor contractor, UT-BATTELLE, LLC (hereinafter "UT-Battelle"), a limited liability company organized under the laws of the State of Tennessee, having an office at 111-B Union Valley Road, Oak Ridge, Tennessee 37831-6498, which shall manage ORNL under its Prime Contract No. DE-AC05-00OR22725 with the United States Department of Energy;

WHEREAS, LMER is obligated under its aforesaid Prime Contract to transfer title to UT-Battelle, as one package, to the extent LMER has retained title, in all said Subject Inventions, said U.S. and foreign patent applications of said Subject Inventions and all said U.S. and foreign patents of said Subject Inventions, all of the foregoing listed in the attached Appendix A (U.S. Subject Inventions, Patent Applications and Issued Patents) and Appendix B (Foreign Patent Applications and Issued Patents).

WHEREAS, LMER, pursuant to its said aforementioned Prime Contract, wishes to assign to UT-Battelle (hereinafter "ASSIGNEE") the aforesaid undivided right, title and interest of said Subject Inventions, said U.S. and foreign patent applications of said Subject Inventions and said U.S. and foreign patents of said Subject Inventions; and

NOW, THEREFORE, in accordance with Prime Contract No. DE-AC05-96OR22464 between LMER and the U.S. Department of Energy, LMER hereby assigns to ASSIGNEE said undivided right, title and interest in said Subject Inventions, all rights of priority thereto pursuant to the International Convention for the Protection of Industrial Property, any Letters Patent and/or patent applications on said Subject Inventions that may be granted in the United States of America and in any and all foreign countries, including any and all Letters Patent and/or patent applications that are divisions, reissues, continuations, renewals, substitutions, reexaminations, or extensions of any Letters Patent or applications therefor on said Subject Inventions.

Further, LMER hereby agrees: (1) to communicate to said ASSIGNEE or its representatives any facts known to it respecting said Subject Inventions, said patent applications of said Subject Inventions and said patents of said Subject Inventions; (2) to testify in any legal proceedings, sign all lawful papers, execute all divisional, continuation, substitution, renewal, reexamination, extension and reissue applications therefor; (3) to execute all necessary assignment papers causing any and all of said patent applications to be issued to said ASSIGNEE and any and all of said Letters Patent to be transferred to said ASSIGNEE; and (4) to make all rightful oaths and

generally do everything possible enabling said ASSIGNEE and its representatives to obtain and enforce proper protection for said Subject Inventions, said patent applications of said Subject Inventions and said patents of said Subject Inventions in the United States of America and in any and all foreign countries.

LMER further agrees that the terms, covenants and conditions of this Assignment shall inure to the benefit of ASSIGNEE, its successors, assigns, and legal representatives, and shall be binding on it, its heirs, legal representatives, assigns and successors in interest.

Assignor: LOCKHEED MARTIN ENERGY RESEARCH CORPORATION

By: WMA

Title: President

Date: APRIL 12, 2001

State of NEW JERSEY)

County of CAMDEN)

On this 12 day of APRIL, 2001, before me a Notary Public in and for the County and State aforesaid, appeared W.C. HAIGHT to me personally known to be the same person whose name is subscribed to the foregoing instrument, and acknowledges that he executed said Instrument as his free and voluntary act and for the uses and purposes therein expressed.

WITNESS my hand and seal the day and year last above given.

Barbara A. Spina
Notary Public
My Commission expires: 2/16/05

[SEAL]

BARBARA A. SPINA
Notary Public
State of New Jersey
County of Camden
Commission Expires Feb. 16, 2005

Assignee: UT-BATTELLE, LLC

By: George L. Craig

Title: General Patent Counsel

Date: 4-18-01

State of Tennessee)

County of Anderson)

On this 18 day of April, 2001, before me a Notary Public in and for the County and State aforesaid, appeared George L. Craig to me personally known to be the same person whose name is subscribed to the foregoing instrument, and acknowledges that he executed said Instrument as his free and voluntary act and for the uses and purposes therein expressed.

WITNESS my hand and seal the day and year last above given.

James Lowe
Notary Public
My Commission expires: 3-2-02

[SEAL]