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09-16-2009



R SHEET

U.S. DEPARTMENT OF COMMERCE

Docket No.: MSU 4.1-894

Patent and Trademark Office

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103574154

1. Name of conveying party(ies): Jes Asmussen, Timothy Grotjohn, Donnie K. Reinhard, Kadek W. Hemawan, Yajun Gu and Jing Lu		2. Name and address of receiving party(ies):
Kadek W. Hemawan, Yajun	Gu and Jing Lu	Name: Board of Trustees of Michigan State University
		Address: 238 Administration Building
Additional names(s) of conveying page		
3. Nature of conveyance/Exe		
Execution Date(s):  Asmussen 06/16/09; Grotjohn 06/16/09; Reinhard 08/24/09; Hemawan 06/19/09; Gu 06/19/09; and Lu 06/19/09  Security Agreement  Joint Research Agreement		City: East Lansing
		State/Prov.: Michigan
		Country: USA ZIP: 48824
☐ Government Interest Assi		
☐ Executive Order 9424, Co	onfirmatory License	
Other		Additional name(s) & address(es) attached? ☐ Yes ☒ No
I. Application or patent num	bers(s):	This document is being filed together with a new application.
A. Patent Application No. (s)		B. Patent No.(s)
12/456,388	June 16, 2009	
		SEF 15
	Additional numbers attac	ched? 🔲 Yes 🔀 No
		the commence of the commence o
concerning document shou		6. Total number of applications and patents involved:
concerning document shou		involved:1
concerning document should Name: Ian C. McLeod		
concerning document should Name: Ian C. McLeod Registration No.: 20,931		7. Total fee (37 CFR 1.21(h) & 3.41) \$ 40.00
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concerning document should Name: Ian C. McLeod Registration No.: 20,931 Address: BUTZEL LONG 2190 Commons Parkway		involved: 1  7. Total fee (37 CFR 1.21(h) & 3.41) \$ 40.00  ☐ Authorized to be charged by credit card ☐ Authorized to be charged to deposit account ☐ Enclosed
concerning document should Name: Ian C. McLeod Registration No.: 20,931 Address: BUTZEL LONG 2190 Commons Parkway City: Okemos		involved: 1  7. Total fee (37 CFR 1.21(h) & 3.41) \$ 40.00  ☐ Authorized to be charged by credit card ☑ Authorized to be charged to deposit account ☐ Enclosed ☐ None required (government interest not affecting title)
concerning document should Name: Ian C. McLeod Registration No.: 20,931 Address: BUTZEL LONG 2190 Commons Parkway  City: Okemos State/Prov.: Michigan		involved: 1  7. Total fee (37 CFR 1.21(h) & 3.41) \$ 40.00  ☐ Authorized to be charged by credit card ☐ Authorized to be charged to deposit account ☐ Enclosed
concerning document should Name: Ian C. McLeod Registration No.: 20,931 Address: BUTZEL LONG 2190 Commons Parkway  City: Okemos State/Prov.: Michigan Country: USA	Id be mailed:  ZIP: 48864	<ul> <li>involved: 1</li> <li>7. Total fee (37 CFR 1.21(h) &amp; 3.41) \$ 40.00</li> <li>☐ Authorized to be charged by credit card</li> <li>☒ Authorized to be charged to deposit account</li> <li>☐ Enclosed</li> <li>☐ None required (government interest not affecting title)</li> <li>8. Payment Information</li> <li>a. Credit Card Last 4 Numbers</li> </ul>
5. Name and address to who concerning document should Name: Ian C. McLeod Registration No.: 20,931 Address: BUTZEL LONG 2190 Commons Parkway  City: Okemos State/Prov.: Michigan Country: USA Phone Number: (517)347-4103	Id be mailed:  ZIP: 48864	involved: 1  7. Total fee (37 CFR 1.21(h) & 3.41) \$ 40.00  ☐ Authorized to be charged by credit card ☑ Authorized to be charged to deposit account ☐ Enclosed ☐ None required (government interest not affecting title)  8. Payment Information
Concerning document should Name: Ian C. McLeod Registration No.: 20,931 Address: BUTZEL LONG 2190 Commons Parkway  City: Okemos State/Prov.: Michigan Country: USA Phone Number: (517)347-4104  Fax Number: (517)347-4103	ZIP: <u>48864</u>	involved: 1  7. Total fee (37 CFR 1.21(h) & 3.41) \$ 40.00  ☐ Authorized to be charged by credit card ☒ Authorized to be charged to deposit account ☐ Enclosed ☐ None required (government interest not affecting title)  8. Payment Information a. Credit Card Last 4 Numbers Expiration Date b. Deposit Account Number 12-2136
concerning document should Name: Ian C. McLeod Registration No.: 20,931 Address: BUTZEL LONG 2190 Commons Parkway  City: Okemos State/Prov.: Michigan Country: USA Phone Number: (517)347-410	ZIP: <u>48864</u>	involved: 1  7. Total fee (37 CFR 1.21(h) & 3.41) \$ 40.00  ☐ Authorized to be charged by credit card ☒ Authorized to be charged to deposit account ☐ Enclosed ☐ None required (government interest not affecting title)  8. Payment Information a. Credit Card Last 4 Numbers Expiration Date b. Deposit Account Number 12-2136
Concerning document should Name: Ian C. McLeod Registration No.: 20,931 Address: BUTZEL LONG 2190 Commons Parkway  City: Okemos State/Prov.: Michigan Country: USA Phone Number: (517)347-4103 Fax Number: (517)347-4103 Email Address: taylort@butze	ZIP: <u>48864</u>	Involved: 1  7. Total fee (37 CFR 1.21(h) & 3.41) \$ 40.00  □ Authorized to be charged by credit card ⊠ Authorized to be charged to deposit account □ Enclosed □ None required (government interest not affecting title)  8. Payment Information a. Credit Card Last 4 Numbers Expiration Date b. Deposit Account Number 12-2136 Authorized User Name Ian C. McLeod
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Mail Stop Assignment Recordation Services, Director of the

## **ASSIGNMENT**

WHEREAS, we, JES ASMUSSEN, TIMOTHY GROTJOHN, DONNIE K. REINHARD, KADEK W. HEMAWAN, YAJUN GU and JING LU residing at 6477 Highland Ridge Drive, East Lansing, Michigan 48823; 2311 Shawnee Trail, Okemos, Michigan 48864; 526 Marshall Street, East Lansing, Michigan 48823; 420 Whitehills Drive, East Lansing, Michigan 48823; 2110 Devonshire Ave., Lansing, Michigan 48910; and 1550 Spartan Village, Apt. J, East Lansing, Michigan 48823, respectively have invented jointly with THOMAS SCHUELKE, M. KAGAN YARAN, MICHAEL BECKER and DAVID KING new and useful improvements in IMPROVED MICROWAVE PLASMA REACTORS for which a United States Letters Patent was filed on June 16, 2009 and assigned Serial No. 12/456,388; and

WHEREAS, Board of Trustees, a constitutional Corporation of MICHIGAN STATE UNIVERSITY, (hereinafter referred to as Assignee) of East Lansing, State of Michigan is desirous of acquiring the undivided right, title and interest in and to said invention and in and to any Letters Patent that may be granted therefor in the United States and in any and all foreign countries as well as the right to priority.

NOW, THEREFORE, in consideration of the sum of One Dollar (\$1.00) to us in hand paid, the receipt whereof is hereby acknowledged, and other valuable considerations, we the said JES ASMUSSEN, TIMOTHY GROTJOHN, DONNIE K. REINHARD, and KADEK W. HEMAWAN, YAJUN GU and JING LU have sold, assigned and transferred, and by these presents do sell, assign and transfer unto said Assignee our undivided interest to the said invention in the United States and its territorial possessions and in all foreign countries and our undivided right, title and interest in and to any and all Letters Patent which may be granted therefor in the United States and its territorial possessions and in any and all foreign countries and in and to any and all divisions, reissues, continuations and extensions thereof.

We hereby authorize and request the Patent and Trademark Office officials in the United States and any and all foreign countries to issue any and all of said Letters Patent, when granted, to said Assignee as the Assignee of our undivided right, title and interest in and to the same for the sole use and behoof of the said Assignee, its successors and assigns.

FURTHER, we agree that we will communicate to said Assignee or its representatives any facts known to us respecting said invention, and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuation, substitution, renewal and reissue applications, execute all necessary assignment papers to cause any and all of said Letters Patent to be issued to said Assignee, make all rightful oaths and generally do everything possible to aid said Assignee, its successors and assigns, to obtain and enforce proper protection for said invention in the United States and in any and all foreign countries.

IN TESTIMONY WHEREOF, I have hereunto set my hand
this 16th day of June, 2009.
Signed in the Presence of:
Sa M. Kar
Jes Asmussen
STATE OF MICHIGAN : $\emptyset$
COUNTY OF :
On this 16th day of 10th, 2009, personally appeared before me the above named. Jes Asmussen to me known and known to me to be the person described in and who executed the foregoing instrument and acknowledged the same to be his free act and deed in and for the purposes set forth in said instrument.
SEAL Jame L. Jaylor  Notary Public
NOTARY PUBLIC-STATE OF MICHIGAN
My Commission Expires Oct. 27, 2014
IN TESTIMONY WHEREOF, I have hereunto set my hand this 16 day of June, 2009.
Signed in the Presence of:
St. M. Dulis
Jun 1
Timothy Grotjohn
STATE OF MICHIGAN : ss.
COUNTY OF : .
On this 16th day of June, 2009, personally appeared before me the above named Timothy Grotjohn to me known and known to me to be the person described in and who executed the foregoing instrument and acknowledged the same to be his free act and deed in and for the purposes set forth in said instrument.
SEAL Morni L. Jaylos)
SEAL Jamme L. Jaylos Notary Public
My Commission Expires: TAMMIL.TAYLOR NOTARY PUBLIC-STATE OF MICHIGAN
COUNTY OF INGHAM  My Commission Expires Oct. 27, 2014

IN TESTIMONY WHEREOF, I have hereunto set my hand
this 24 day of August, 2009.
Signed in the Presence of:
Donnie K Reinhard
bomile II. Relimara
STATE OF MICHIGAN : ss.
COUNTY OF :
on this 24th day of Might 2000 nonconsily
On this diff day of <u>august</u> , 2009, personally appeared before me the above named bonnie K. Reinhard to me known and known to me to be the person described in and who executed the foregoing instrument and acknowledged the same to be his free act and deed in and for the purposes set forth in said instrument.
SEAL 1A . A. A.
Jammi L. Jaylor
My Commission Expires: NOTARY PUBLIC-STATE OF MICHIGAN
COUNTY OF INGHAM  My Commission Expires Oct. 27, 2014
IN TESTIMONY WHEREOF, I have hereunto set my hand
this <u>19</u> day of <u>06</u> , 2009.
Signed in the Presence of:
St. M. Pan Made Keman
Kadek W. Hemawan
STATE OF MICHIGAN :
COUNTY OF :
On this 19th day of, 2009, personally appeared before me the above named Kadek W. Hemawan to me known and known to me to be the person described in and who executed the foregoing instrument and acknowledged the same to be his free act and deed in and for the purposes set forth in said instrument.
SEAL A LAND (
Notary Public
My Commission Expires: TAMMIL TAYLOR
MY COUNTY OF INGHAM  My Commission Expires Oct. 27, 2014

IN TESTIMONY WHEREOF, I have hereunto set my hand
this <u>19</u> day of <u>June</u> , 2009.
Signed in the Presence of:
86 M. Pun Jajun Gu Yajun Gu
STATE OF MICHIGAN :
COUNTY OF :
On this 19th day of gune, 2009, personally appeared before me the above named Yajun Gu to me known and known to me to be the person described in and who executed the foregoing instrument and acknowledged the same to be his free act and deed in and for the purposes set forth in said instrument.
SEAL A TANK OF A
Notary Public STATE OF MICHIGAN  My Commission Expires: NOTARY PUBLIC STATE OF MICHIGAN
My Commission Expires: NOTARY PUBLIC-STATE OF MICHIGAN COUNTY OF INGHAM
My Commission Expires Oct. 27, 2014
IN TESTIMONY WHEREOF, I have hereunto set my hand this 19 day of June, 2009.  Signed in the Presence of:  Jing Lu  Jing Lu
STATE OF MICHIGAN :
COUNTY OF :
On this $19h$ day of $9une$ , 2009, personally appeared before me the above named Jing Lu to me known and known to me to be the person described in and who executed the foregoing instrument and acknowledged the same to be his free act and deed in and for the purposes set forth in said instrument.
SEAL A TA . (a)
Notary Public
My Commission Expires: TAMMIL.TAYLOR
NOTARY PUBLIC-STATE OF MICHIGAN COUNTY OF INGHAM My Commission Evolves Oct. 27, 2014

**RECORDED: 09/15/2009**