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Form PTO-1595
(Rev. 10/02)



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U.S. DEPARTMENT OF COMMERCE
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OMB No. 0651-0027 (exp. 6/30/200)

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Tab settings ⇌ ⇌ ⇌

To the Honorable Commissioner of Patents and Trademarks: Please record the attached original documents or copy thereof.

1. Name of conveying party(ies): 7-11-03

John S. Hsu Curtis W. Ayer
Donald Joe Adams Chester Coomer
Gui-Jia Su
Laura D. Marlino

Additional name(s) of conveying party(ies) attached? Yes No

2. Name and address of receiving party(ies)

Name: UT-Battelle, LLC

Internal Address: MS 6498

Street Address: P.O. Box 2008

City: Oak Ridge State: TN Zip: 37831-6498

Additional name(s) & address(es) attached? Yes No

3. Nature of conveyance:

Assignment Merger
 Security Agreement Change of Name
 Other _____

Execution Date: 7/11/2003

4. Application number(s) or patent number(s):

If this document is being filed together with a new application, the execution date of the application is: 7/11/2003

A. Patent Application No.(s) _____

B. Patent No.(s) _____

Additional numbers attached? Yes No

5. Name and address of party to whom correspondence concerning document should be mailed:

Name: Kirk A. Wilson

Internal Address: 111B Union Valley Road

Street Address: P.O. Box 2008

UT-Battelle, LLC

City: Oak Ridge State: TN Zip: 37831-6498

6. Total number of applications and patents involved: 1

7. Total fee (37 CFR 3.41).....\$ 40.00

Enclosed
 Authorized to be charged to deposit account

8. Deposit account number:

13-1958

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9. Signature.

Kirk A. Wilson
Name of Person Signing

Kirk A Wilson
Signature

7/11/2003
Date

Total number of pages including cover sheet, attachments, and documents: 1

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07/11/03

07/24/2003 EC00PER 00000046 131958 10618372

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Mail documents to be recorded with required cover sheet information to:
Commissioner of Patents & Trademarks, Box Assignments
Washington, D.C. 20231

PATENT
REEL: 014295 FRAME: 0434

ASSIGNMENT

WHEREAS, I the below-named inventor whose residence and post office are as stated below, am a co-inventor of certain new and useful improvements in

Methods and Apparatus for Thermal Management of Vehicle Systems and Components

(hereinafter referred to as "Subject Invention") for which an application for United States Letters Patent was executed by me on even date herewith, and

WHEREAS, UT-BATTELLE, LLC, a limited liability company of the State of Tennessee, having an office at 111-B Union Valley Road, P. O. Box 2008, Oak Ridge, Tennessee 37831-6498, hereinafter referred to as "ASSIGNEE," is desirous of acquiring the entire right, title and interest of the undersigned in the Subject Invention and to any Letters Patent that may be granted therefor in the United States of America and in any and all foreign countries.

NOW, THEREFORE, in accordance with the terms of my employment agreement with ASSIGNEE and for good and valuable consideration, the receipt of which is hereby acknowledged, I hereby assign to ASSIGNEE my entire right, title and interest in the Subject 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 Subject 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 Subject Invention.

I 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 hereby agree to communicate to said ASSIGNEE or its representatives any facts known to me respecting said Subject 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 Subject Invention in the United States of America and in any and all foreign countries.

I 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, my heirs, legal representatives, and assigns.

Full name of inventor: John Sheungchun Hsu

Signature: John S. Hsu Date: 7/11/2003

Post Office Address: 105 Edinboro Lane, #B-20, Oak Ridge, Tennessee 37830

State of Tennessee)
County of Anderson)

On this 11 day of July, 2003, before me, a Notary Public in and for the County and State aforesaid, appeared John Sheungchun Hsu 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.

Kirk A. Wilson
Notary Public

SEAL
My Commission Expires: March 30, 2005

Full name of inventor: Donald Joe Adams

Signature: Donald Joe Adams Date: 7/11/2003

Post Office Address: ~~12813 Peach View Drive~~, Knoxville, Tennessee 37922

State of Tennessee) 146 Confederacy Way
County of Anderson) DJA 7/11/2003

On this 11 day of July, 2003, before me, a Notary Public in and for the County and State aforesaid, appeared Donald Joe Adams 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.

Kirk A. Wilson
Notary Public

SEAL
My Commission Expires: March 30, 2005

Full name of inventor: Gui-Jia Su

Signature: Gui-Jia Su Date: 7/11/2003

Post Office Address: 50 Elomre Lane, Knoxville, TN 37922

350 GNS 7/11/03

State of Tennessee)

County of Anderson)

On this 11 day of July, 2003, before me, a Notary Public in and for the County and State aforesaid, appeared Gui-Jia Su 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.

Kirk A. Wilson
Notary Public

SEAL
My Commission Expires: March 30, 2005

Full name of inventor: Laura D. Marlino

Signature: Laura D. Marlino Date: 7/11/2003

Post Office Address: 134 Newport Drive, Oak Ridge, Tennessee 37830

State of Tennessee)
County of Anderson)

On this 11 day of July, 2003, before me, a Notary Public in and for the County and State aforesaid, appeared Laura D. Marlino 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.

Kirk A. Wilson
Notary Public

SEAL
My Commission Expires: March 30, 2005